DETAIL SUPPLEMENT NO.	MUNICIPALITY	DETAIL TITLE	REVISED
301	**MAG**	**Blocking For Water Gate and Butterfly Valves**	
G-601	GL	Blocking for Water Gate Valves	6/28/02
302-1	**MAG**	**Joint Restraint with Tie Rods**	
302-2	**MAG**	**Joint Restraint with Tie Rods**	
303-1	**MAG**	**Joint Restraint for Ductile Iron Pipe and Polyethylene Wrapped Ductile Iron Pipes**	
303-2	**MAG**	**Joint Restraint for Ductile Iron Pipe and Polyethylene Wrapped Ductile Iron Pipes**	
310	**MAG**	**Cast Iron Water Meter Box Cover No. 1**	
311	**MAG**	**Cast Iron Water Meter Box Cover No. 2**	
312	**MAG**	**Cast Iron Water Meter Box Cover No. 3**	
313	**MAG**	**Cast Iron Water Meter Box Cover No. 4**	
314	**MAG**	**Cast Iron Water Meter Box Cover No. 5**	
M-49.4	ME	Steel Water Meter Box Cover	7/1/97
P1315	PH	Steel water Meter Box Cover	7/9/92
2315	SC	Nonpotable Water Valve Box & Cover	2/22/99
320	**MAG**	**Concrete Water Meter Boxes**	
C-301	CH	Water Service Installation	1/11/02
62	GI	1” to 2” Water Service Installation	1/2005
G-642	GL	Water Service Connections	6/28/02
G-643	GL	Water Service and Sewer Service Locations	6/28/02
G-3310	GO	Water Service Connections	7/97

G-3312	GO	¾" Water Service Meter and Box Installation	7/97
M-49.1	ME	Water Service Installation	9/27/99
M-49.2	ME	Water Service Installation	3/07/06
M-49.3	ME	Single and Manifold Water Installation	11/22/04
325	PE	Water Meter Box Location and Construction	7/15/98
P1342	PH	Water Service Connections	8/31/98
P1363	PH	Water Meter Location	7/3/00
2330	SC	Water Service Line Connection	4/12/05
T-212	TE	Water Meter & Service Installation	2005
321	**MAG**	**Standard Water Meter Vault**	
AJW-101	AJ	¾" to 2" Water Meter Setting Detail	07-30-2001
	AV	¾" to 2" Water Service Connections	
G-680	GL	Double Check Valve Backflow Prevention Assembly Vault Installation	6/28/02
M30.1	ME	Standard Meter Vault	1/1/02
M-30.2	ME	Water Meter Vault Dimension	1/1/02
340	**MAG**	**Installing Tapping Sleeves and Valves**	
UM-8043-D	AV	Pit Lid Device Installation	09-20-1999
G-605	GL	Manhole for Butterfly Valves	6/28/02
G-3307	GO	Butterfly Valve Operator Manhole	7/97
G-3307-2	GO	Butterfly Valve Operator Manhole	7/97
346	PE	Manhole for Butterfly Valves	7/14/98
2305-1	SC	Butterfly Valve Operator Manhole	1/4/93
2305-2	SC	Butterfly Valve Operator Manhole	1/14/93
T-216	TE	Valve Vault Installation for Existing Butterfly Valve	1998
342	**MAG**	**Concrete Pressure Pipe**	

		Tapping Sleeve	
345-1	**MAG**	**3", 4", 6" Water Meter**	
C-316	CH	3" to 6" Water Meter	1/11/02
G-674	GL	Turbo Meter Assembly 3, 4, or 6 Inch	6/28/02
G-676	GL	Compound Meter Assembly 3, 4, or 6 Inch	6/28/02
G-3313-1	GO	3", 4", 6" Water Meter	7/97
G-3313-2	GO	3", 4", 6" Water Meter	7/97
2345-1	SC	3", 4", 6" Water Meter	2/27/01
345-2	**MAG**	**4", 6" Water Meter with On-Site Fire Hydrants**	
2345-2	SC	3", 4", 6" Water Meter	2/27/01
346	**MAG**	**Fire Line Detector Check Vault**	
M-27.1	ME	Domestic and Fire Service Water Meter	1/13/03
M-27.2	ME	Notes for Domestic and Fire Service Water Meter	9/27/99
M-31.6	ME	Check Valve Assembly for Class I & II Fire Protection Systems	2/1/02
M-31.7	ME	Fire Lines to Private Property	2/1/02
P1356	PH	Temporary Support For the Hydrant Backflow Assembly	6-27-01
T-217	TE	Waterline Extension for Building Fire Sprinklers	
360	**MAG**	**Fire Hydrant Installation**	
C-303	CH	Fire Hydrant	1/11/02
60	GI	Fire Hydrant	1/2005
60A	GI	Fire Hydrant Detail	1/2005
G-660	GL	Method of Setting Fire Hydrant	6/28/02
G-661	GL	Method of Setting Fire Hydrant Over 100Ft From Main	6/28/02
G-3330	GO	Fire Hydrant Installation	7/97
360	PE	Fire Hydrant Installation	7/15/98
	PE	Hydrant/FDC Clearances	11/30/01
362	**MAG**	**Locations for New Fire Hydrants**	
C-305	CH	Locations for New Fire Hydrant	11/19/99

G-662	GL	Location for new Fire Hydrants	11/06/01
G-665	GL	Fire Hydrant Installation with Conflicting Utility	6/28/02
P1362	PH	Fire Hydrant Location	7/19/04
370	**MAG**	**Vertical Realignment of Water Mains**	
G-3301	GO	Vertical Realignment of Water Mains	7/97
P1370	PH	Vertical Realignment of Water Line	8/8/03
2370	SC	Vertical Realignment of Water Mains	2/27/02
380	**MAG**	**Thrust Blocks for Water Lines**	
381	**MAG**	**Anchor Blocks for Vertical Bends**	
389	**MAG**	**Curb Stop with Valve Box and Cover**	
390	**MAG**	**Curb Stop with Flushing Pipe**	
C-300	CH	Flushing Pipe Assembly with Ball Valve	1/11/02
391-1	**MAG**	**Valve Box Installation and Grade Adjustment**	
C-307	CH	Valve Box Installation (Potable Water)	1/11/02
G-3320-1	GO	Valve Box Installation and Grade Adjustment	7/97
393	PE	Water Valve Adjustment	7/16/98
P1391	PH	Valve Box Installation	7/19/04
391-2	**MAG**	**Valve Box Installation and Grade Adjustment**	
G-3320-2	GO	Valve Box Installation	7/97
P1391-1	PH	Valve Operating Nut Extension	6/27/01
392	**MAG**	**Debris Cap Installation**	
C-318	CH	Debris and Locking Cap	1/11/02
G-3321	GO	Debris Cap Installation	7/97
P1165	Phoenix	Debris Cap Installation	

Series 300- Water Information – Miscellaneous Detail Supplements			
G-600	GL	Water Distribution System Zones	6/2002
MANHOLE COVERS			
2320	SC	Non-Potable Water Manhole Cover	
2321	SC	Water Manhole Cover	
50	GI	Grading for Irrigated Lot	1/2005
T-215	TE	Standard Casing Detail	1998
VALVE LOCATIONS			
G-607	GL	Typical Valve Locations	6/28/02
341	PE	Typical Valve Locations	7/4/98
WATERLINE CUT OUT			
G-3303	GO	Waterline Cut Out (tees and crosses) for 12” dia. Main and Smaller	7/97
P1344	PH	Waterline Cut Out (tees and crosses) for 12” dia. Main and Smaller	7/9/02
G-3305	GO	Waterline-Cut and Plug for 12” dia. Main and Smaller	7/97
P1343	PH	Waterline-Cut and Plug for 12” dia. Main and Smaller	5/31/94
WATERLINE SUSPENSIONS			
G-3309	GO	Waterline Suspensions	7/97
P1395	PH	Waterline Suspensions	7/9/92
WATER QUALITY SAMPLING			
G-3370	GO	Water Quality Sampling Station	7/97
2349	SC	Water Quality Sampling Station	
CHLORINE INJECTION			
G-3315	GO	Chlorine Injection Tap for Underground Waterline	7/97
2332	SC	Chlorine Injection Tap for Underground Waterlines	3/11/94
G-3316	GO	Tap for Future Chlorine Injection	7/97
2333	SC	Tap for Future Chlorine Injection	1/4/93

PIPE BEDDING			
C-308	CH	PVC Water Pipe Bedding Detail	1/11/02
84	GI	Bedding Detail Concrete Pipe	8/14/01
85	GI	Bedding Detail for C-900 Water Pipe	8/14/01
G-690	GL	Bedding and Backfill for Underground Facilities	6/28/02
406	PE	Bedding and Backfill for PVC Pipelines	02/20/01
UTILITY SEPARATION			
G-3300	GO	Minimum Utility Separation Requirements	7/97
2372	SC	Minimum Utility Separation Requirements	8/29/96
FIRE HYDRANTS			
C-306	CH	Fire Hydrant Reflector Locations	11/19/99
61	GI	Pavement Markers for Fire Hydrants	1/2005
G-650	GL	Typical Hydrant Maker Location	11/6/01
G-3212	GO	Typical Fire Hydrant Marker	07/1997
271	PE	Fire Hydrant Marker Location	07/14/98
2363	SC	Pavement Markers for Fire Hydrants	5/15/91
2364	SC	Fire and Emergency Access and Delineation	2/26/04
GUARD POSTS			
83B	GI	Guard Posts	01/05
G-672	GL	Guard Posts for Backflow Prevention Assemblies	6/28/02
G-673	GL	Metal Cage for Reduced Pressure Principal Backflow	6/28/02
G-3332	GO	Hydrant Guards	7/97
G-3357	GO	Backflow Prevention Device Security Enclosure Detail	7/97
G-3358	GO	Guard Posts for Backflow Prevention Assemblies	7/97
M-32	ME	Guard Post for Backflow Prevention Devices	1/1/01
P1359	PH	Hydrant Guards	6/27/01

FIRE LANE SIGNAGE/HYDRANT/CONNECTIONS			
63	GI	Town of Gilbert fire Dept. Fire Lane Sign Detail	10/1/95
G-434	GL	Installation of Fire Lane Signs	11/6/01
G-3142	GO	Firelane Sign Installation	07/97
	PE	Construction Fire Access Sign	11/30/01
	PE	Fire Lane Sign	11/30/01
2365	SC	Fire Lane Sign	2/26/04
C-304	CH	Fire Hydrant Lock	11/19/99
P1361	PH	Fire Hydrant Threads 2 ½" & 4"	7/9/92
C-317	CH	Concrete Collar Detail Water Valve Box Placement Unpaved Areas	1/11/02
2362	SC	1 ½" – 2" Fire Line Connection	4/12/05
2366	SC	Concrete Collar for Fire Hydrants	4/30/04
2367	SC	Fire Department Remote Siamese Connection	5/17/05
P1356	PH	Temporary Support for Fire Hydrant Backflow Assembly	6/27/01
2368	SC	Fire Sprinkler Riser Detail – Vertical Installation	5/17/05
2369	SC	Fire Sprinkler Riser Detail – Vertical Installation #2	5/17/05
2380	SC	Temporary Water Hydrant Meter Assembly	
2381	SC	Temporary Blow-Off for Water Supply	
G-3336	GO	Fire Hydrant Bypass Assembly	7/97
BACKFLOW PREVENTERS			
C-302	CH	Residential Backflow Prevention Assembly – 1" or Under	11/19/99
C-309	CH	Pressure Vacuum Breaker Assembly Installation – 2" and Under	11/19/99
G-684	GL	Pressure Vacuum Breaker Assembly	6/28/02
G-3355	GO	Pressure Vacuum Breaker Assembly Installation – 2"	7/97

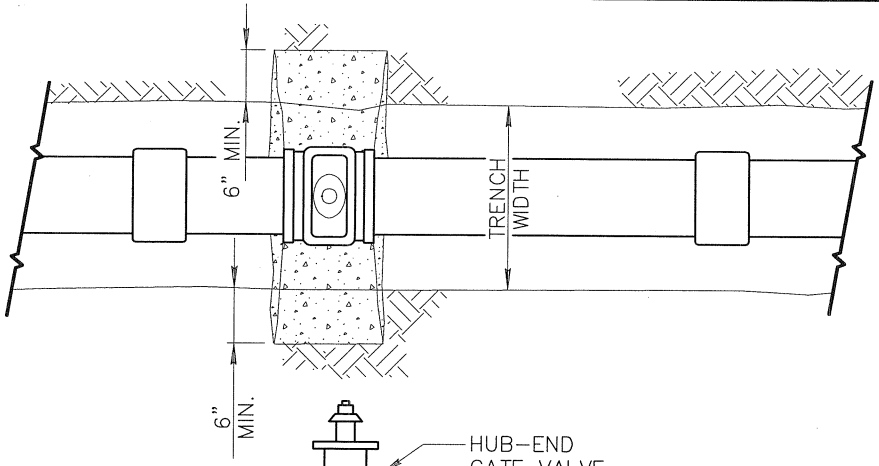
		and Under	
M-31.5	ME	Pressure Vacuum Breaker Assembly for Assemblies 2 Inches and Less	2/01/02
P1355	PH	Pressure Vacuum Breaker Assembly Installation – 2" and Under	6/27/01
2355	SC	Pressure Vacuum Breaker Assembly for Assemblies ½" thru 2"	5/5/04
T-211	TE	Pressure Vacuum Breaker Backflow Assembly	1998
C-311	CH	Reduced Pressure-Principle	1/11/02
83L	GI	Reduced Pressure Principle Device for Landscape Only	1/05
G-669	GL	Reduced Pressure Backflow Prevention Assembly for Assemblies 2 ½ Inch and Less	6/28/02
G-3354	GO	Reduced Pressure Principle Backflow Prevention Assembly Installation – 2 ½" and Under.	7/97
M-31.3	ME	Reduced Pressure Principle Backflow Prevention Assembly; for Assemblies 2" and Less	2/1/02
P1354	PH	Reduced Pressure Principle Backflow Prevention Assembly Installation – 2 ½" and Under	6/27/01
2354	SC	Reduced Pressure Backflow Prevention Assemblies ¾" thru 2 ½"	5/5/04
T-213-A	TE	Reduced Pressure Backflow Assembly ¾" – 2 Inch	1998
C-315	CH	Reduced Pressure Assembly 3", 4", 6", 8", 10"	11/19/99
83	GI	Reduced Pressure Principle Assembly	8/25/98
G-671	GL	Reduced Pressure Principle Backflow Prevention Assembly for Assemblies 3" and Larger	6/28/02
G-3351	GO	Reduced Pressure Principle	7/97

		Backflow Prevention Assembly Installation – 3" and Over	
M-31.1	ME	Reduced Pressure Principle Backflow Prevention Assembly; for Assemblies 2 ½" and Larger	2/1/02
P1351	PH	Reduced Pressure Principle Backflow Prevention Assembly Installation – 3" and Over	6/27/01
2353	SC	Reduced Pressure Principle Backflow Prevention Assembly for Assemblies 3 inches thru 10 inches	5/5/04
2360	SC	"N" Shaped Reduced Pressure Principle Backflow Prevention Assembly for Assemblies 3 inches thru 10 inches	5/5/04
T-213	TE	Reduced Pressure Principle Backflow Prevention Assembly	1998
CHECK VALVES			
FP-1-98	AV	Fire Protection Double Check Valve Backflow Prevention Assembly 4 inches thru 10 inches	08-07-1998
C-310	CH	Double Check Valve Backflow Prevention Installation – 3" and Under	11/19/99
G-668	GL	Double Check Valve Assembly for Assemblies 2 ½" and Less	6/28/02
G-3353	GO	Double – Check Valve Backflow Prevention Assembly Installation – 2 ½" and Under	7/97
M-31.4	ME	Double – Check Valve Backflow Prevention Assembly; for Assemblies – 2" and Less	2/01/02
P1353	PH	Dbl-Check Valve Backflow Prevention Assm'y Installation – 2 1/2" & Under	6/27/01
2352	SC	Double Check Valve	5/5/04

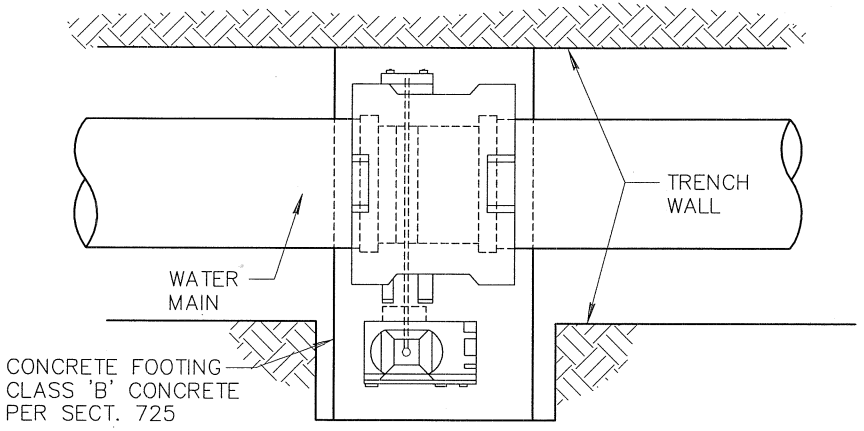
		Backflow Prevention Assembly for Assemblies ¾" thru 2 ½"	
T-214-A	TE	Double Check Backflow Assembly ¾" – 2"	1998
C-312	CH	Double Check Valve Backflow Prevention Assembly 2 ½", 4", 6", 8", 10" Private Domestic Water Main	11/19/99
C-314	CH	Double Check Valve Backflow Prevention Assembly 2 ½", 4", 6", 8", 10"	11/19/99
G-670	GL	Double Check Valve Assembly for Assemblies 3" and Larger	6/28/02
G-3352	GO	Double – Check Valve Backflow Prevention Assembly Installation – 3" and Over	7/97
M-31.2	ME	Double – Check Valve Backflow Prevention Assembly; for Assemblies – 2 ½" and Larger	1/1/04
P1352	PH	Dbl-Check Valve Backflow Prevention Assembly Installation – 3" and Over	6/27/01
2351	SC	Double Check Valve Backflow Prevention Assembly for Assemblies 3" thru 10"	5/5/04
2359	SC	"N" Shaped Double Check Valve Backflow Prevention Assembly for Assemblies 3 inches thru 10 inches	5/5/04
T-214	TE	Double Check and Double Detector Check Backflow Assembly	1998
C-313	CH	Double Check Valve Backflow Prevention Assembly Vault Installation	11/19/99
P1396	PH	Double Check Valve Assembly	7/9/92
M-28.1	ME	4" and 6" Compound Water Meter (without on-site fire	1/30/03

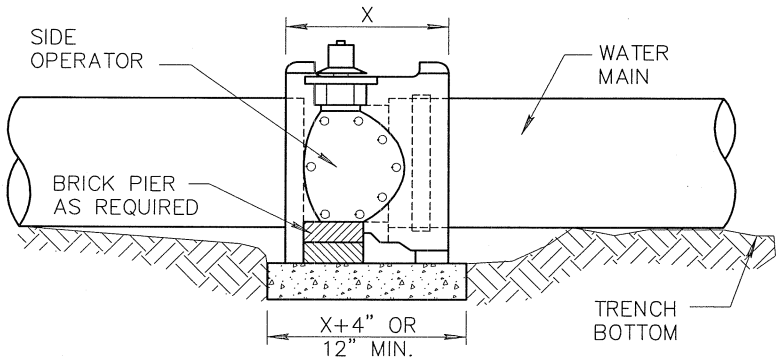
		hydrants)	
M-28.2	ME	Notes for 4” and 6” Compound Water Meter (without on-site fire hydrants)	1/13/03
M-28.3	ME	Parallel 2” Water Meter for 3” Water Services	1/24/05
M-29	ME	1 ½” & 2” Approved Water Meters	7/1/02
2346	SC	Temporary Construction Meter	3/8/05
2380	SC	Temporary Water Supply Hydrant Meter Assembly	
T-212-A	TE	1 ½” & 2” Meter Installation	2005
2342-1	SC	Pressure Reducing Valve	2/27/01
C-319	CH	2” Combination Air/Vacuum Valve Assembly	1/11/02
83A	GI	Air Release Valve	1/2005
G-3328	GO	2” Air/Vacuum Release Valve	7/97
2348	SC	2” Air/Vacuum Release Valve	4/12/05
G-3323	GO	Pressure Reducing & Sustaining Valve	7/97
P1394	PH	Pressure Reducing & Sustaining Valve	7/9/92
2342-2	SC	Pressure Reducing Valve	2/27/01
G-3361	GO	Backflow Prevention Method for Potable Tanks with No Air Gap Separation	7/97
M-37.1	ME	Backflow Protection for Tank Trucks	7/1/02
2358	SC	Backflow Prevention Method for Portable Tanks with No Air Gap Separation	
G-3360	GO	Fill Pipe Details for Portable Tanks with Air Gap Separation	7/97
C-108	CH	Air Gap Backflow Protection For Water Tanks	11-19-1999
M-37.2	ME	Air Gap Backflow Protection for Water Tanks	7/1/02
2357	SC	Fill Pipe Details for Portable Tanks with Air Gap Separation	

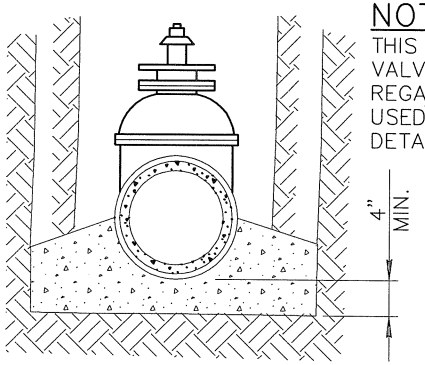
C-105	Chandler	Guard Post For Backflow Prevention Assemblies	
2356	SC	Guard Posts for Backflow Prevention Assemblies	2/9/99
2381	SC	Temporary Blow-off for Water Supply	
2382	SC	Temporary Water Service	
2397	SC	Electronic Ballmarker Placement	4/12/2005
2398	SC	Antenna Mast Detail	4/30/2004
T-445	TE	Valve Grade Adjustment	2001



CLASS 'C' CONCRETE AS PER SECT. 725
FORM AS REQUIRED TO KEEP CLEAR OF JOINTS.



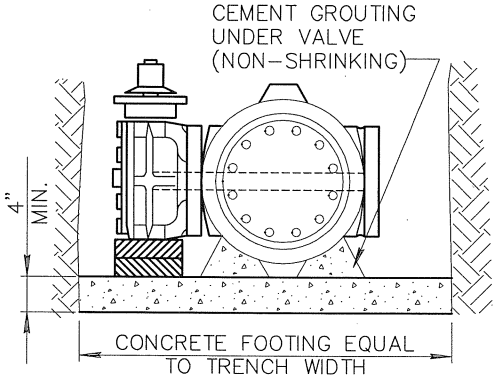




NOTE:

THIS DETAIL COVERS WATER GATE VALVES, 4" TO 12" INCLUSIVE REGARDLESS OF TYPE OF PIPE USED. LARGER LINES TO BE DETAILED ON PLANS.

WATER GATE VALVE



BUTTERFLY VALVE

NOTES:

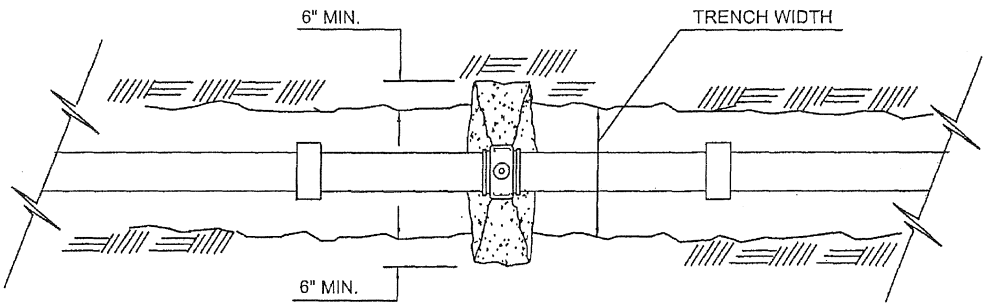
1. THIS DETAIL COVERS BUTTERFLY VALVE INSTALLATION, 3" TO 12" INCLUSIVE, REGARDLESS OF TYPE OF PIPE OR JOINT USED. LARGER LINES TO BE DETAILED ON PLANS.
2. VALVE BOX AND COVER REQUIRED PER DETAILS 270 AND 391.

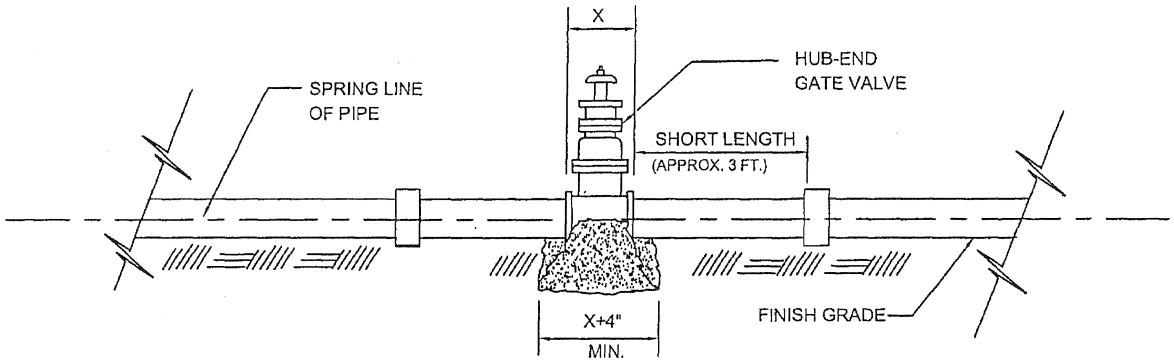
DETAIL NO.			REVISED	DETAIL NO.
301	MARICOPA ASSOCIATION of GOVERNMENTS STANDARD DETAIL ENGLISH	BLOCKING FOR WATER GATE AND BUTTERFLY VALVES		301

STANDARD DETAIL G-601

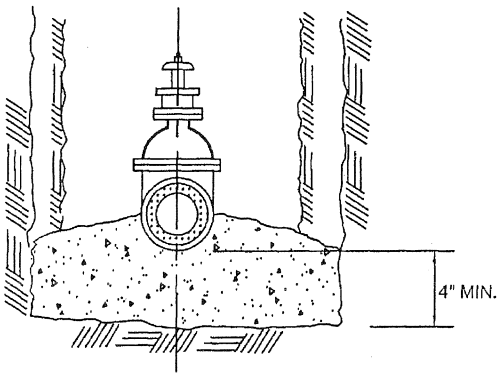
CITY OF GLENDALE
ENGINEERING

BLOCKING FOR WATER GATE VALVES





CLASS C CONCRETE AS PER SECTION 725
FORM AS REQUIRED TO KEEP CLEAR OF JOINTS.



WATER GATE VALVE

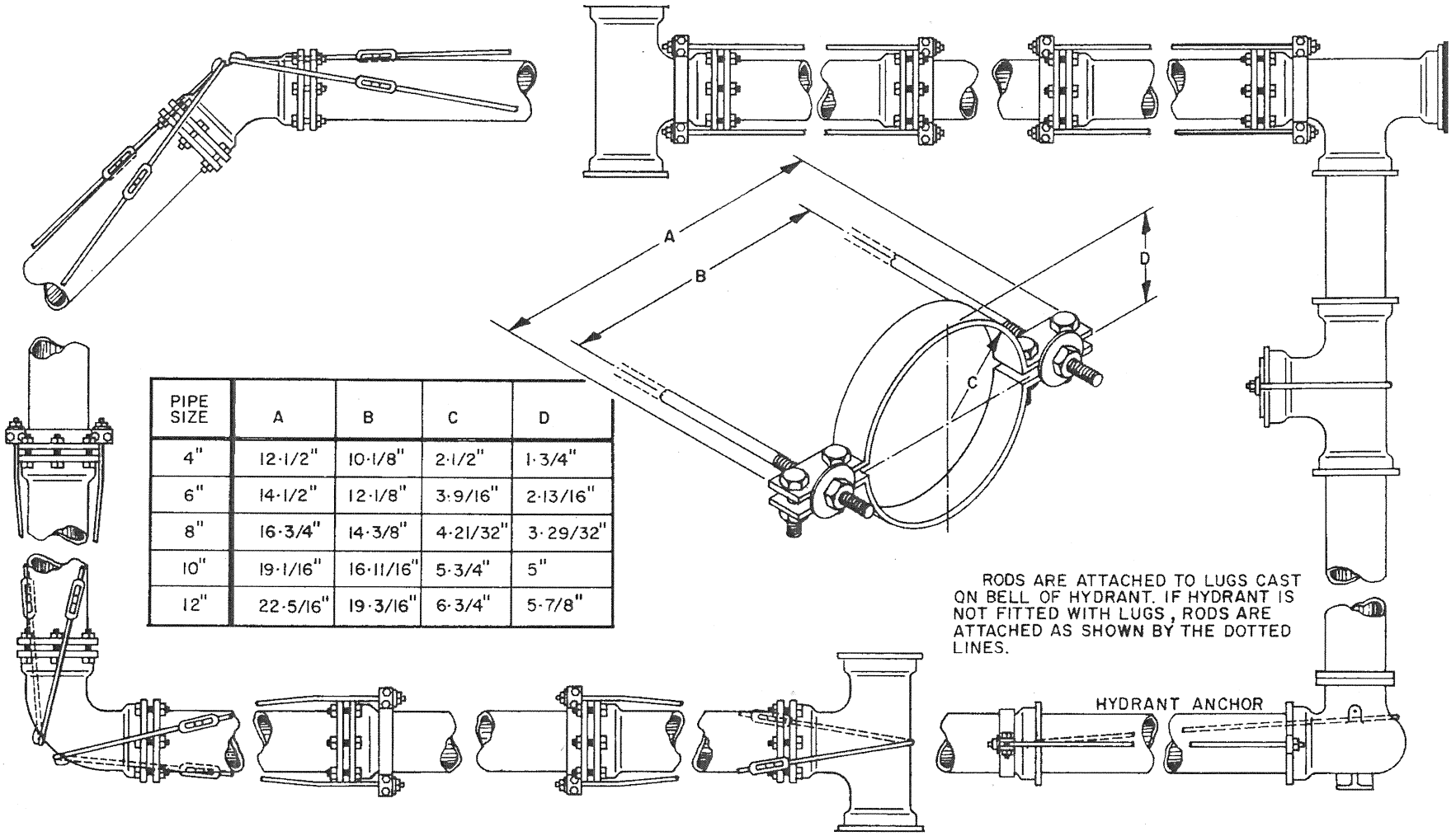
NOTE:

THIS DETAIL COVERS WATER GATE VALVES, 4" TO 16" INCLUSIVE, REGARDLESS OF TYPE OF PIPE USED. LARGER LINES TO BE DETAILED ON PLANS.

APPROVED BY: Larry J Broyles
CITY ENGINEER

6/28/02
DATE

REVISED : JUNE 2002
PREVIOUS :



PIPE SIZE	A	B	C	D
4"	12-1/2"	10-1/8"	2-1/2"	1-3/4"
6"	14-1/2"	12-1/8"	3-9/16"	2-13/16"
8"	16-3/4"	14-3/8"	4-21/32"	3-29/32"
10"	19-1/16"	16-11/16"	5-3/4"	5"
12"	22-5/16"	19-3/16"	6-3/4"	5-7/8"

RODS ARE ATTACHED TO LUGS CAST ON BELL OF HYDRANT. IF HYDRANT IS NOT FITTED WITH LUGS, RODS ARE ATTACHED AS SHOWN BY THE DOTTED LINES.

DETAIL NO.			REVISED	DETAIL NO.
302-1	MARICOPA ASSOCIATION of GOVERNMENTS STANDARD DETAIL ENGLISH	JOINT RESTRAINT WITH TIE RODS		302-1

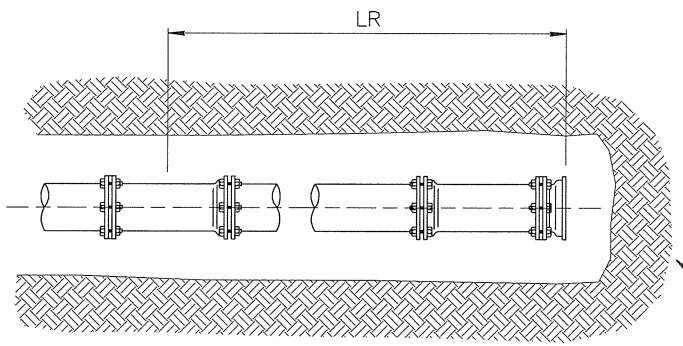
THIS DETAIL IS FOR USE ONLY ON UNDERGROUND INSTALLATIONS WHERE THE USE OF CONCRETE THRUST BLOCKING PER DETAIL 380 CANNOT BE USED BECAUSE OF OBSTRUCTIONS, OR REQUIREMENTS OF THE SPECIFICATIONS...

* CLAMPS SHALL BE 1/2 BY 2 INCHES FOR PIPE 4 AND 6 INCHES IN DIAMETER; 5/8 BY 2–1/2 INCHES FOR PIPE 8 AND 10 INCHES; 5/8 BY 3 INCHES FOR PIPE 12 INCHES. BOLT HOLES SHALL BE 1/16 INCH IN DIAMETER LARGER THAN BOLTS.
* RODS SHALL BE 3/4 INCHES IN DIAMETER FOR PIPES 4,6 AND 8 INCHES IN DIAMETER; 7/8 INCHES FOR PIPE 10 INCHES AND 1 INCH IN DIAMETER FOR PIPE 12 INCHES.
* BOLTS SHALL BE 5/8 INCHES IN DIAMTER FOR PIPE 4, 6 AND 8 INCHES IN DIAMETER; 3/4 INCHES FOR PIPE 10 INCHES AND 7/8 INCHES IN DIAMETER FOR PIPE 12 INCHES
* WASHERS MAY BE CAST IRON OR STEEL, ROUND OR SQUARE, DIMENSIONS FOR CAST IRON WASHERS ARE 5/8 BY 3 INCHES FOR PIPE 4, 6, 8 AND 10 INCHES IN DIAMETER AND 3/4 BY 3–1/2 INCHES FOR PIPE 12 INCHES. DIMENSIONS FOR STEEL WASHERS ARE 1/2 BY 3 INCHES FOR PIPE 4, 6, 8 AND 10 INCHES IN DIAMETER AND 1/2 BY 3–1/2 INCHES FOR PIPE 12 INCHES IN DIAMTER. HOLES SHALL BE 1/8 INCH LARGER THAN THE RODS.

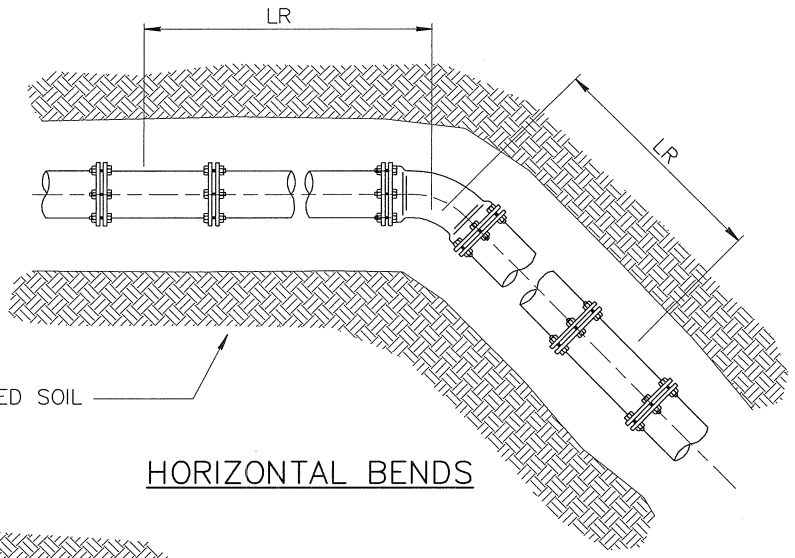
FOR PIPE LARGER THAN 12 INCHES IN DIAMETER, RESTRAINT DETAILS SHALL BE SUBMITTED FOR APPROVAL PRIOR TO INSTALLATION.

1. ALL TIE RODS, ROD COUPLINGS, TURNBUCKLES, BOLTS AND NUTS FOR THESE JOINTS SHALL BE OF CARBON STEEL EQUIVALENT TO A.S.T.M. A–307, GRADE B, WITH CADMIUM PLATING IN ACCORDANCE WITH A.S.T.M. A–165. EXCEPT THAT THE MIN. THICKNESS OF THE PLATING SHALL BE .0002 OF AN INCH. CADMIUM PLATED BOLTS SHALL HAVE CLASS 2A THREADS AND THE NUTS, ROD COUPLINGS AND TURNBUCKLES SHALL HAVE 2B THREADS.
2. HIGH STRENGTH, HEAT TREATED CAST IRON TEE–HEAD BOLTS WITH HEXAGON NUTS, ALL IN ACCORDANCE WITH THE STRENGTH REQUIREMENTS OF A.W.W.A. C–111, MAY BE USED IN LIEU OF THE CADMIUM PLATED BOLTS AND NUTS.
3. THE SKETCHES IN THIS SERIES OF FIGURES SHOW ACCEPTABLE METHODS OF PROVIDING ANCHORAGE. THERE IS NO PARTICULAR SIGNIFICANCE TO BE ATTACHED TO WHETHER THE SKETCH SHOWS A BELL AND SPIGOT JOINT OR A STANDARD MECHANICAL JOINT. THE ANCHORING PROCEDURE ILLUSTRATED APPLIES IN MOST CASES TO EITHER TYPE OF JOINT. IN SOME CASES, DIMENSIONS OF THE PARTICULAR PIPE OR HUB AND SPACE AVAILABLE FOR WORKING AROUND THE PARTICULAR JOINT WILL INFLUENCE THE CHOICE OF METHODS USED.
4. IN CERTAIN ASSEMBLIES OF RODS AND CLAMPS SHOWN, RODS RUN FROM A LUG ON THE FITTING (OR A CLAMP BEHIND THE HUB OF A BELL) TO A CLAMP AGAINST A FACE OF A BELL. NOTE THAT THIS ARRANGEMENT ANCHORS ONLY ONE JOINT. THE STABILITY OF THE JOINT WHERE THE CLAMP IS AGAINST THE FACE OF THE BELL DEPENDS ON HAVING SOIL ABOVE A RELATIVELY LONG PIECE OF PIPE ON BOTH SIDES OF THE JOINT. CONSEQUENTLY, IF THE DISTANCE BETWEEN THE FIRST AND SECOND JOINTS IS LESS THAN 12 FEET, THE SECOND JOINT SHOWN SHALL BE ANCHORED BY A CLAMP BEHIND THE HUB OF THE BELL AND RODS TO A CLAMP AT THE FACE OF THE NEXT BELL.
5. COATING TYPE: A.H.D. ASPHALTIC PRIMER 719(A). – ALL EXPOSED METAL.

DETAIL NO.				REVISED	DETAIL NO.
302-2	MARICOPA ASSOCIATION of GOVERNMENTS STANDARD DETAIL ENGLISH	JOINT RESTRAINT WITH TIE RODS			302-2



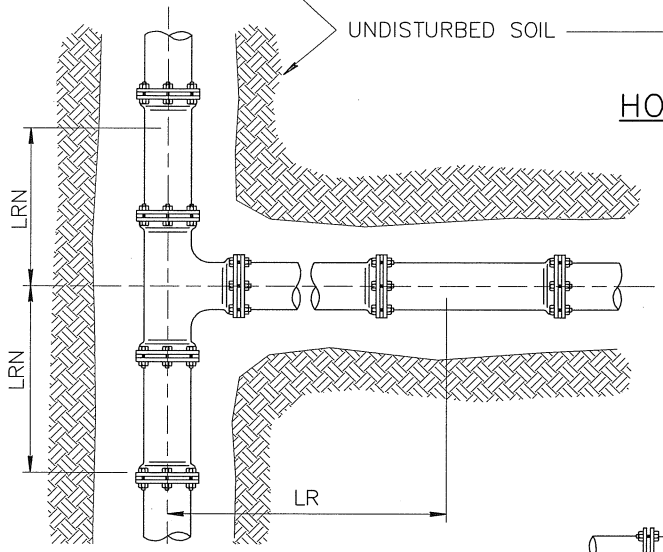
DEAD ENDS



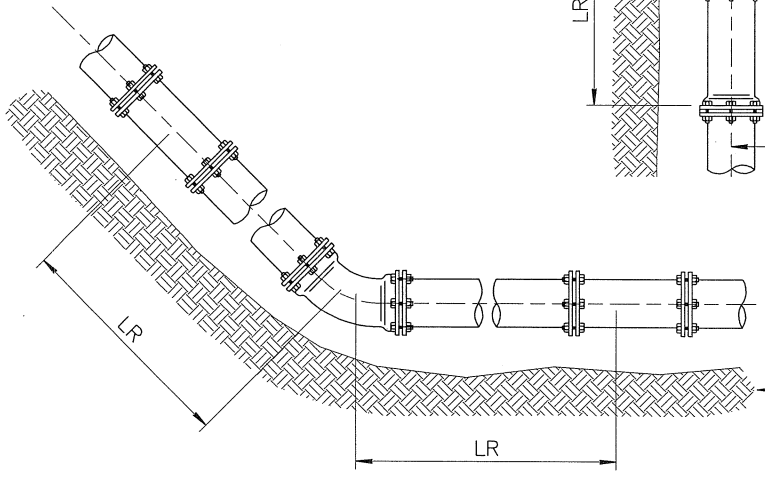
HORIZONTAL BENDS

UNDISTURBED SOIL

LRN = SHORTEST LENGTH OF PIPE RESTRAINED TO THE RUN OF THE TEE FITTING (BOTH SIDES OF TEE).

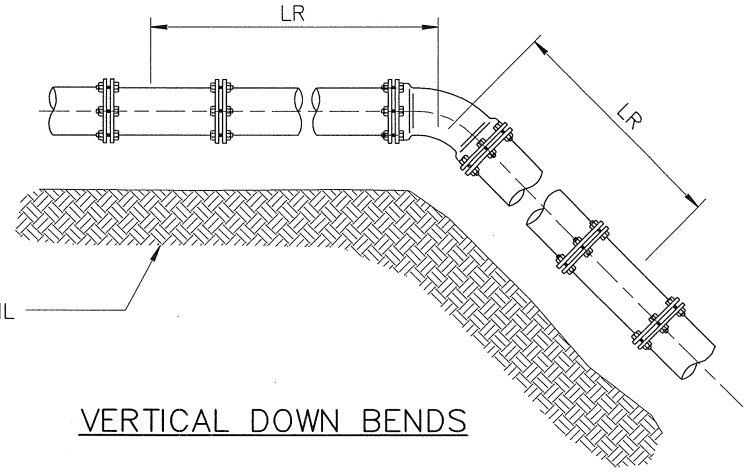


TEES



VERTICAL UP BEND

UNDISTURBED SOIL



VERTICAL DOWN BENDS

DETAIL NO.			REVISED	DETAIL NO.
303-1	MARICOPA ASSOCIATION of GOVERNMENTS **STANDARD DETAIL ENGLISH**	**JOINT RESTRAINT FOR DUCTILE IRON AND POLYETHYLENE WRAPPED DUCTILE IRON WATER PIPES**		303-1

RESTRAINED LENGTHS, LR, FOR DUCTILE IRON PIPE

NOMINAL PIPE SIZE INCHES	HORIZONTAL BENDS			TEES		VERTICAL OFFSETS						DEAD ENDS
						90° BEND FITTINGS		45° BEND FITTINGS		22-1/2° BEND FITTINGS		
	90°	45°	22-1/2°	LRN=0'	LRN=10'	DOWN BEND	UP BEND	DOWN BEND	UP BEND	DOWN BEND	UP BEND	
4	18	7	4	30	8	31	18	13	7	6	3	31
6	25	10	5	43	20	44	25	18	10	9	5	44
8	32	13	6	56	34	58	32	24	13	11	6	58
10	38	16	8	68	45	69	38	29	16	14	8	69
12	45	19	9	80	57	81	45	34	19	16	9	81
14	51	21	10	91	68	92	51	38	21	18	10	92
16	57	24	11	103	79	104	57	43	24	21	11	104
18	62	26	12	113	90	115	62	48	26	23	12	115
20	68	28	14	125	100	126	68	52	28	25	14	126
24	79	33	16	145	121	147	79	61	33	29	16	147

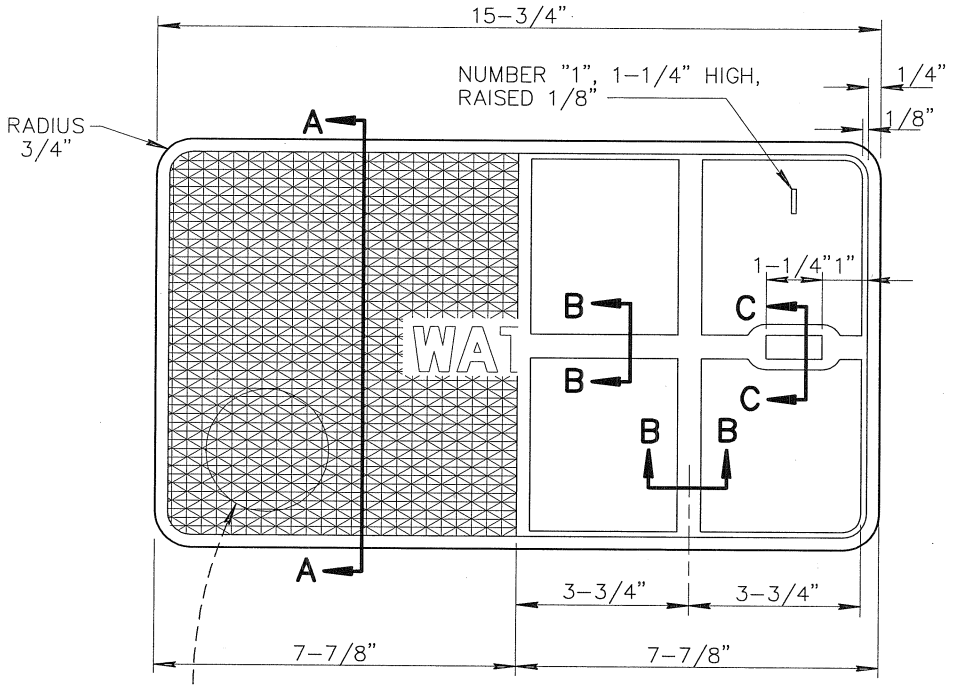
RESTRAINED LENGTHS, LR, FOR DUCTILE IRON PIPE WITH POLYETHYLENE WRAP

NOMINAL PIPE SIZE INCHES	HORIZONTAL BENDS			TEES		VERTICAL OFFSETS						DEAD ENDS
						90° BEND FITTINGS		45° BEND FITTINGS		22-1/2° BEND FITTINGS		
	90°	45°	22-1/2°	LRN=0'	LRN=10'	DOWN BEND	UP BEND	DOWN BEND	UP BEND	DOWN BEND	UP BEND	
4	26	11	5	69	18	72	26	30	11	14	5	72
6	36	15	7	99	47	102	36	42	15	20	7	102
8	47	19	9	130	78	133	47	55	19	26	9	133
10	56	23	11	157	103	159	56	66	23	32	11	159
12	65	27	13	185	131	187	65	77	27	37	13	187
14	74	31	15	211	156	214	74	89	31	42	15	214
16	82	34	16	238	183	241	82	100	34	48	16	241
18	90	37	18	263	207	266	90	110	38	53	18	266
20	98	41	20	289	233	292	98	121	41	58	20	292
24	113	47	22	337	280	340	113	141	47	68	22	340

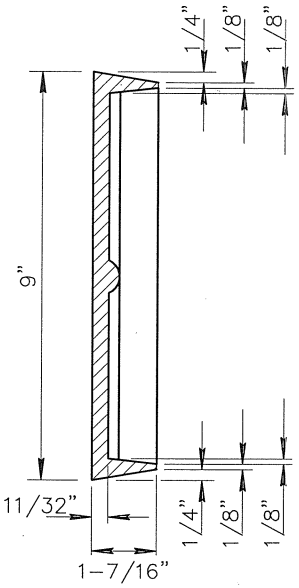
NOTES:

1. ALL JOINTS WITHIN THE SPECIFIED LENGTH LR MUST BE RESTRAINED. ALL LENGTHS ARE GIVEN IN FEET.
2. THE MAXIMUM TEST PRESSURE SHALL NOT EXCEED 200 PSI
3. THE MINIMUM DEPTH OF BURY SHALL BE 3' TO TOP OF PIPE.
4. RESTRAINED LENGTHS MAY BE REDUCED WHEN SUPPORTED BY ENGINEERING CALCULATIONS.

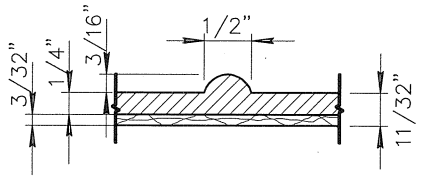
DETAIL NO.		STANDARD DETAIL		REVISED	DETAIL NO.
303-2	MARICOPA ASSOCIATION of GOVERNMENTS	ENGLISH	JOINT RESTRAINT FOR DUCTILE IRON AND POLYETHYLENE WRAPPED DUCTILE IRON WATER PIPES		303-2



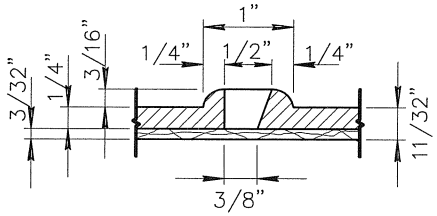
PLAN



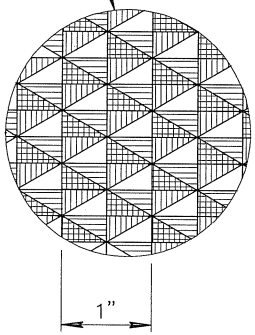
SECTION A–A



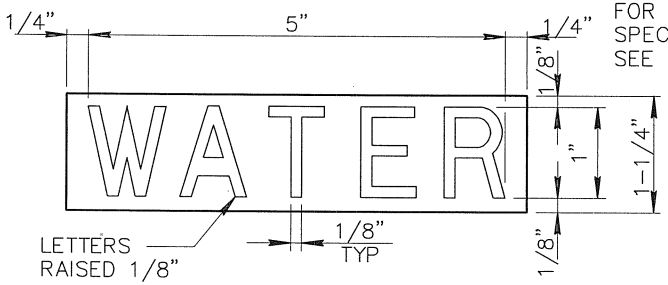
SECTION B–B



SECTION C–C

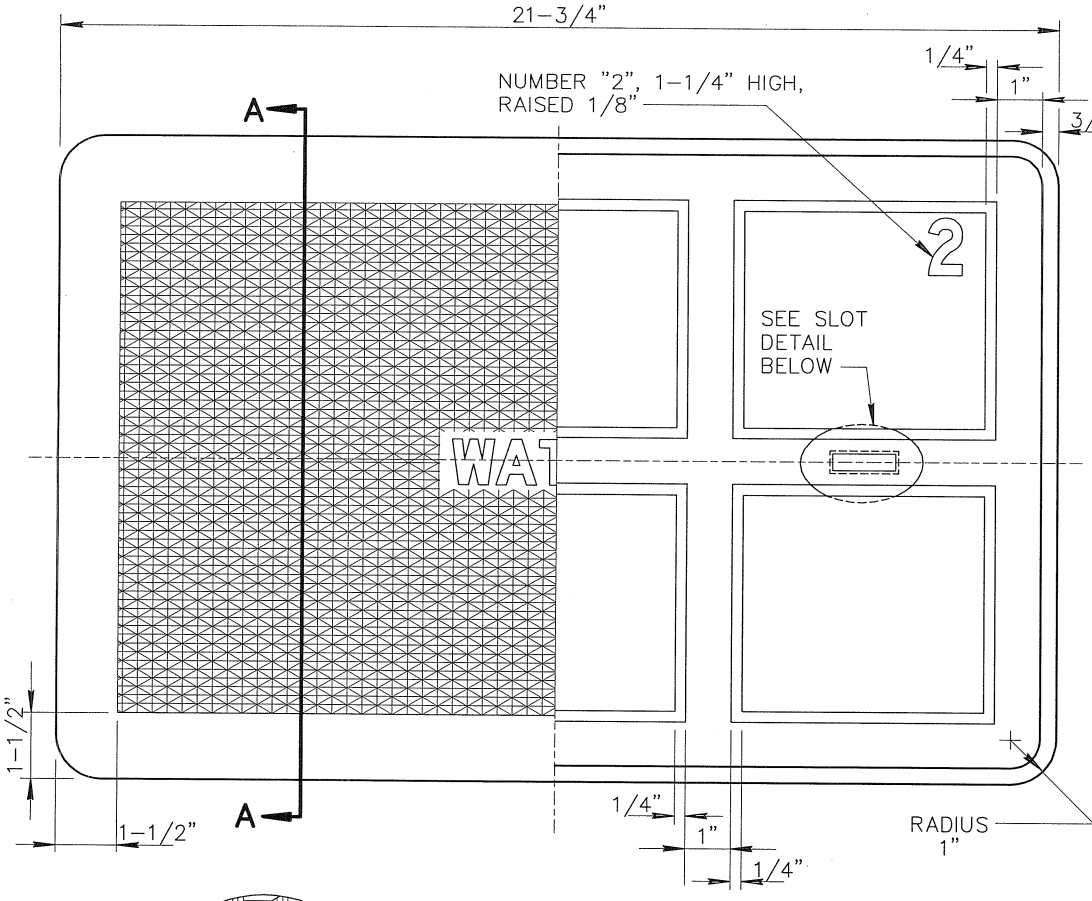


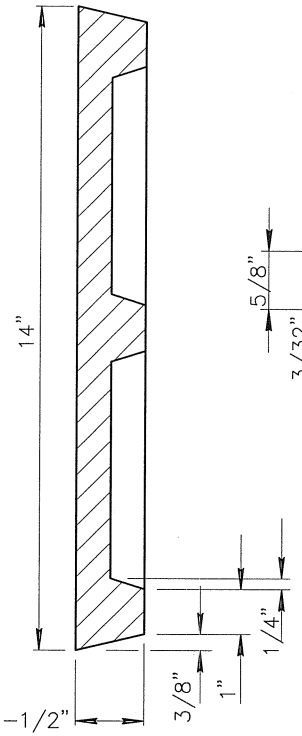
TOP OF COVER



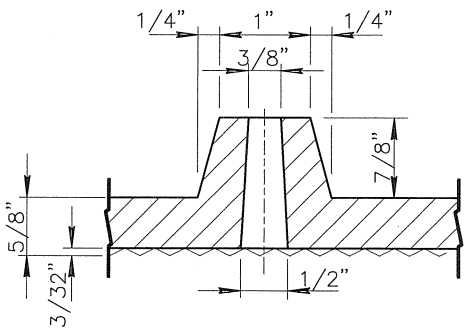
FOR CASTING SPECIFICATIONS SEE SECT. 787

DETAIL NO.			REVISED	DETAIL NO.
310	MARICOPA ASSOCIATION of GOVERNMENTS **STANDARD DETAIL ENGLISH**	**CAST IRON WATER METER BOX COVER NO. 1**		310





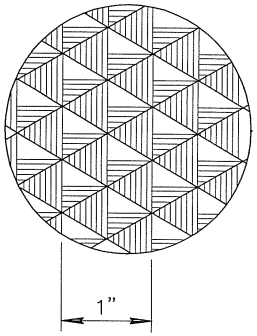
SECTION A-A



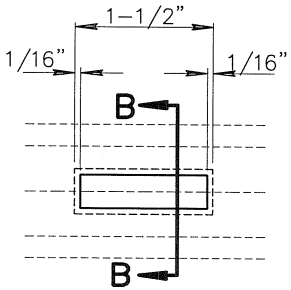
SECTION B-B

NOTE:

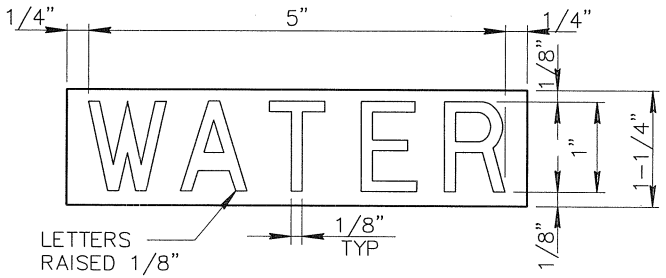
FOR CASTING SPECIFICATIONS
SEE SECT. 787.



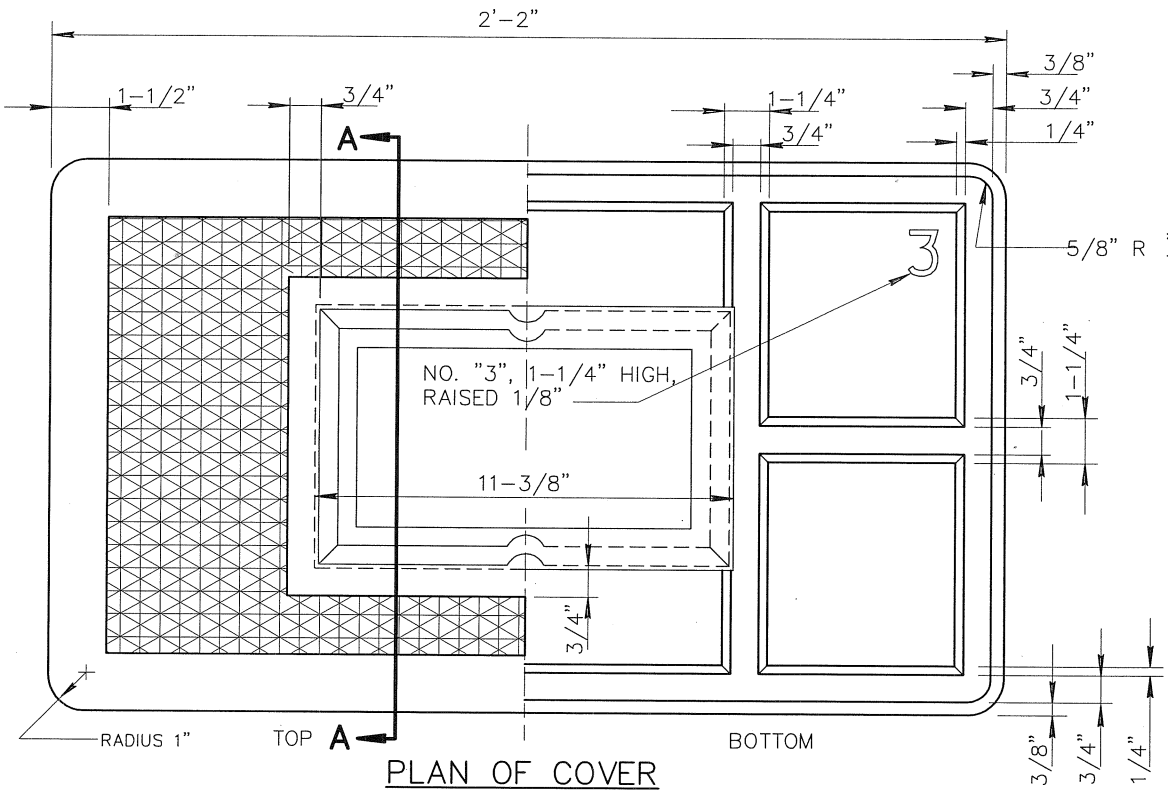
TOP OF COVER



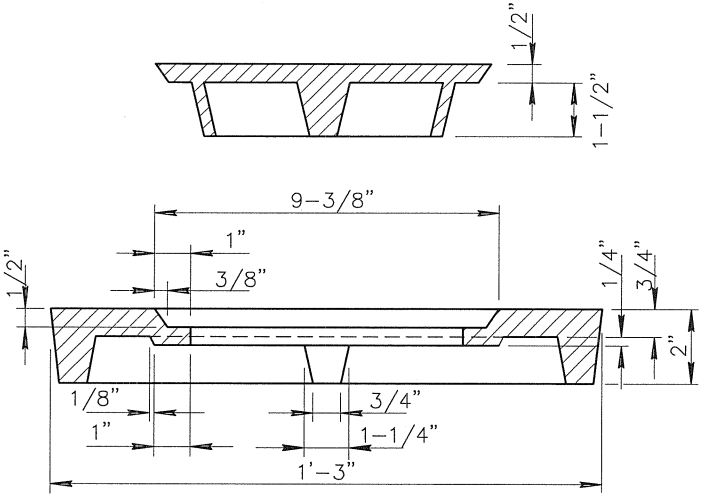
SLOT DETAIL



DETAIL NO.			REVISED	DETAIL NO.
311	MARICOPA ASSOCIATION of GOVERNMENTS STANDARD DETAIL ENGLISH	CAST IRON WATER METER BOX COVER NO. 2		311



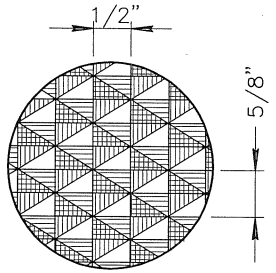
PLAN OF COVER



SECTION A-A

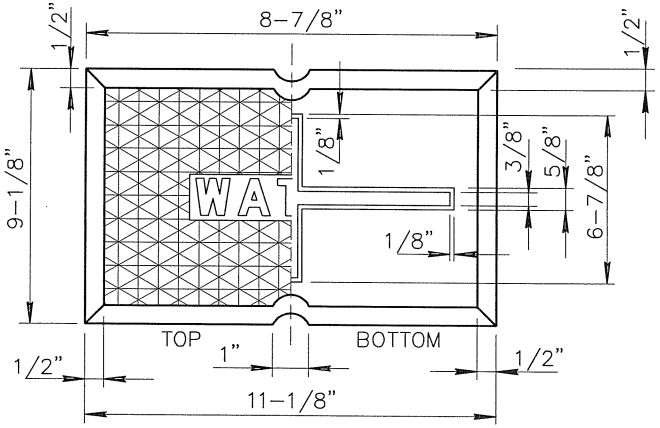
NOTES:

1. INSPECTION PLATE IS SAME AS USED WITH METER BOX COVER NO. 4.
2. FOR CASTING SPECIFICATIONS, SEE SECTION 787.
3. THE BEARING EDGES OF THESE CASTINGS SHALL BE MACHINED TO INSURE A FULL BEARING ON A FLAT SURFACE.

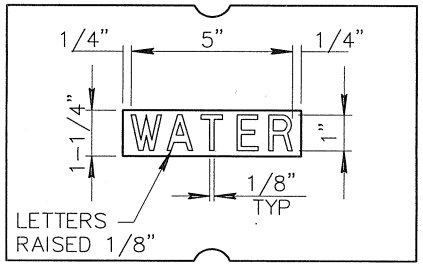


DETAIL

TOP OF COVER & PLATE

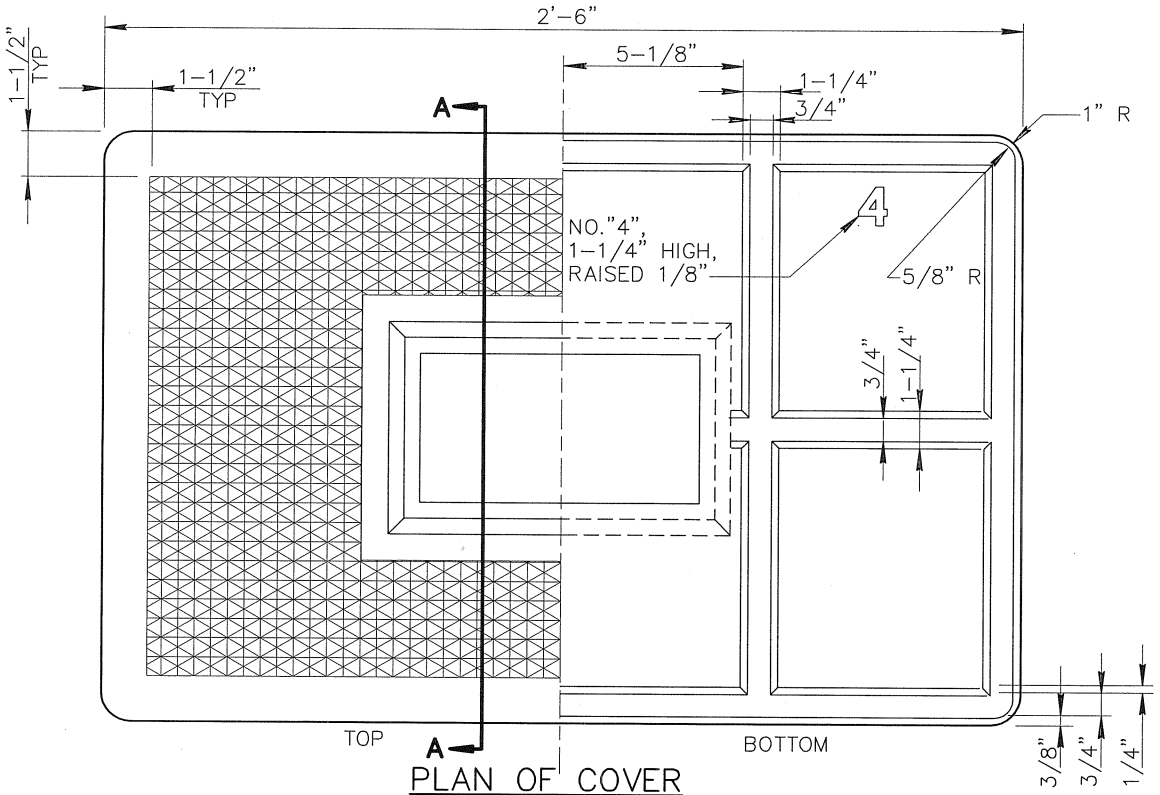


INSPECTION PLATE

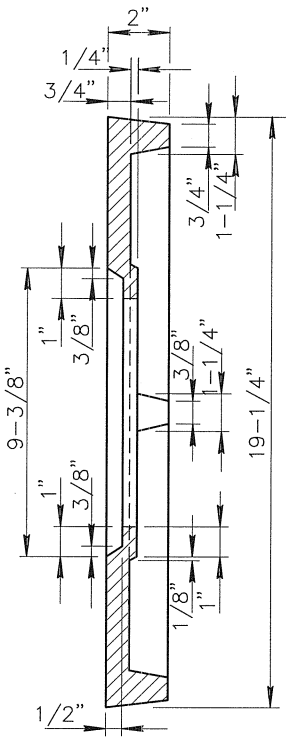


LETTERING DETAIL

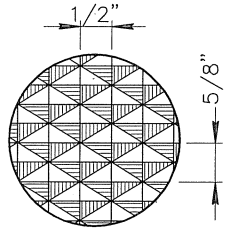
DETAIL NO.			REVISED	DETAIL NO.
312	MARICOPA ASSOCIATION of GOVERNMENTS STANDARD DETAIL ENGLISH	CAST IRON WATER METER BOX COVER NO. 3		312



PLAN OF COVER



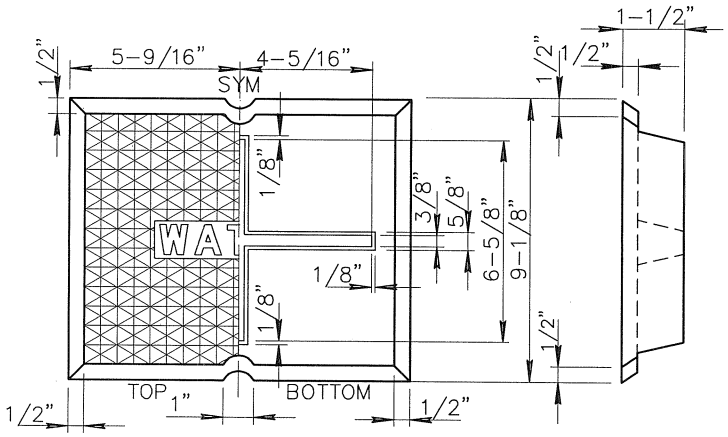
SECTION A–A



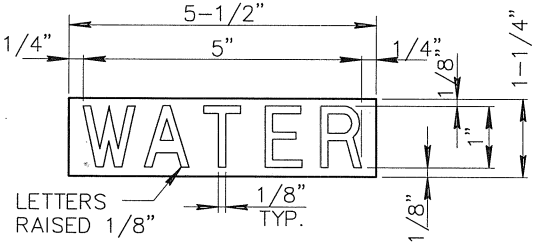
TOP OF COVER

NOTES:

1. FOR CASTING SPECIFICATIONS, SEE SECT. 787. THE BEARING
2. THE BEARING EDGES OF THESE CASTINGS SHALL BE MACHINED TO INSURE A FULL BEARING ON A FLAT SURFACE.

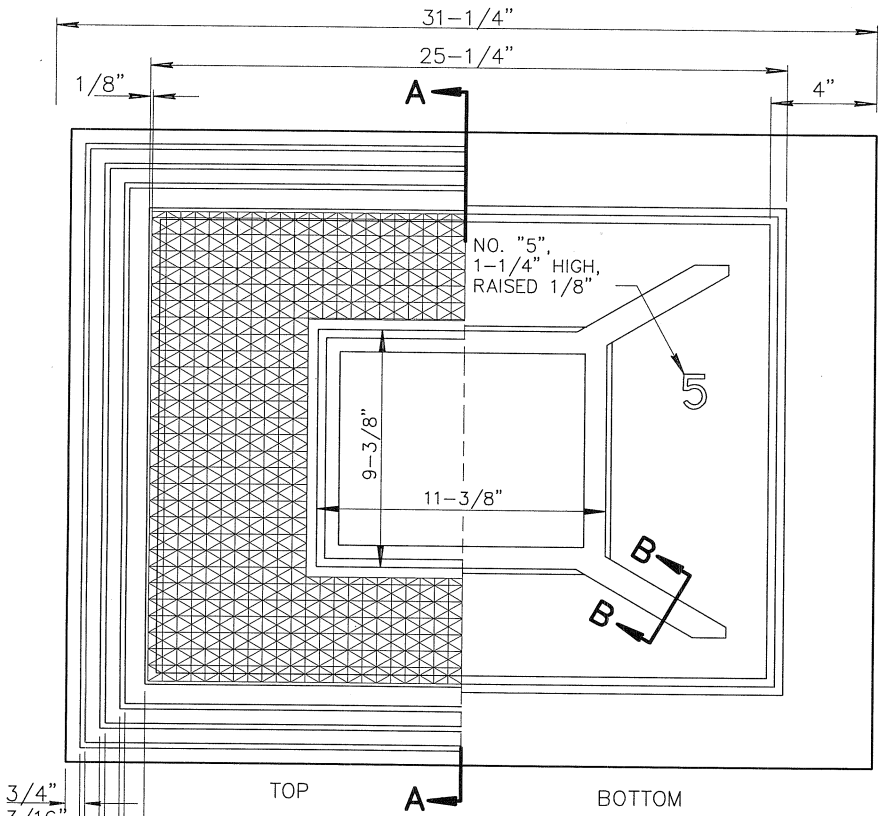


INSPECTION PLATE

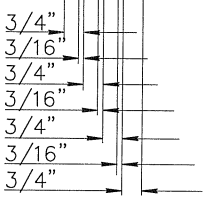


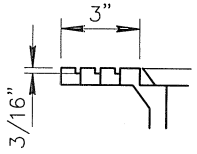
LETTERING DETAIL

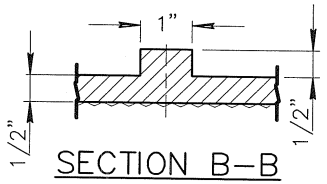
DETAIL NO.			REVISED	DETAIL NO.
313	MARICOPA ASSOCIATION of GOVERNMENTS STANDARD DETAIL ENGLISH	CAST IRON WATER METER BOX COVER NO. 4		313



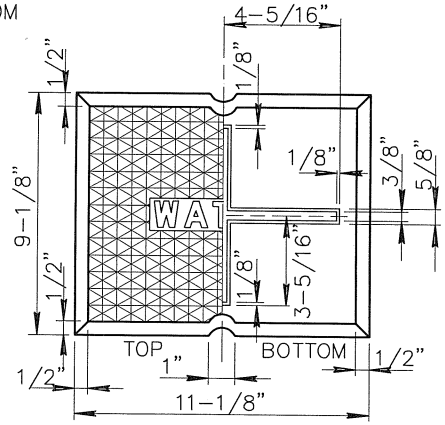
PLAN OF COVER



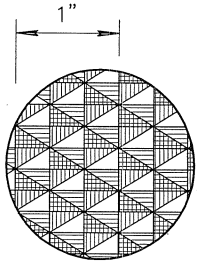




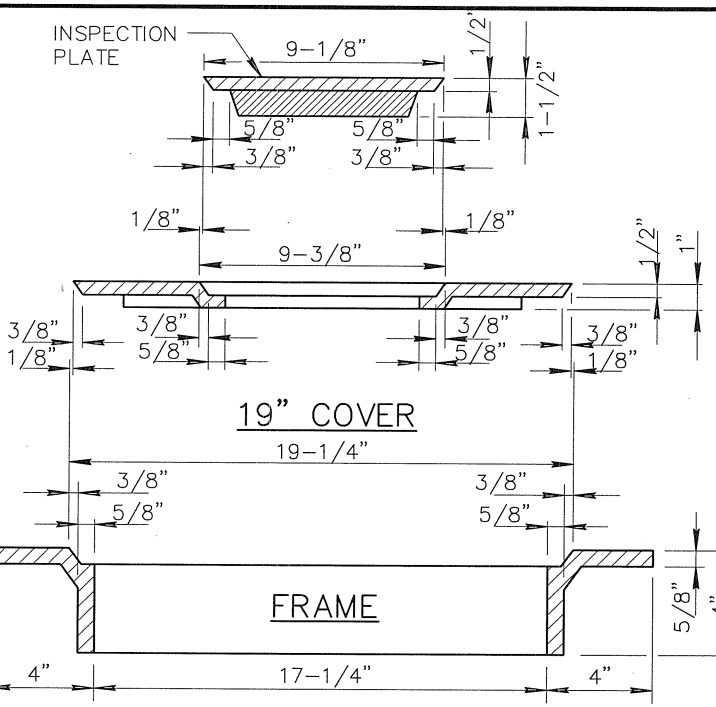
SECTION B-B



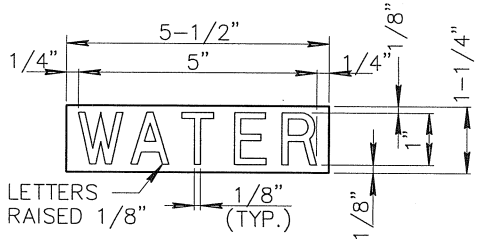
INSPECTION PLATE



DETAIL
TOP OF COVER



SECTION A-A



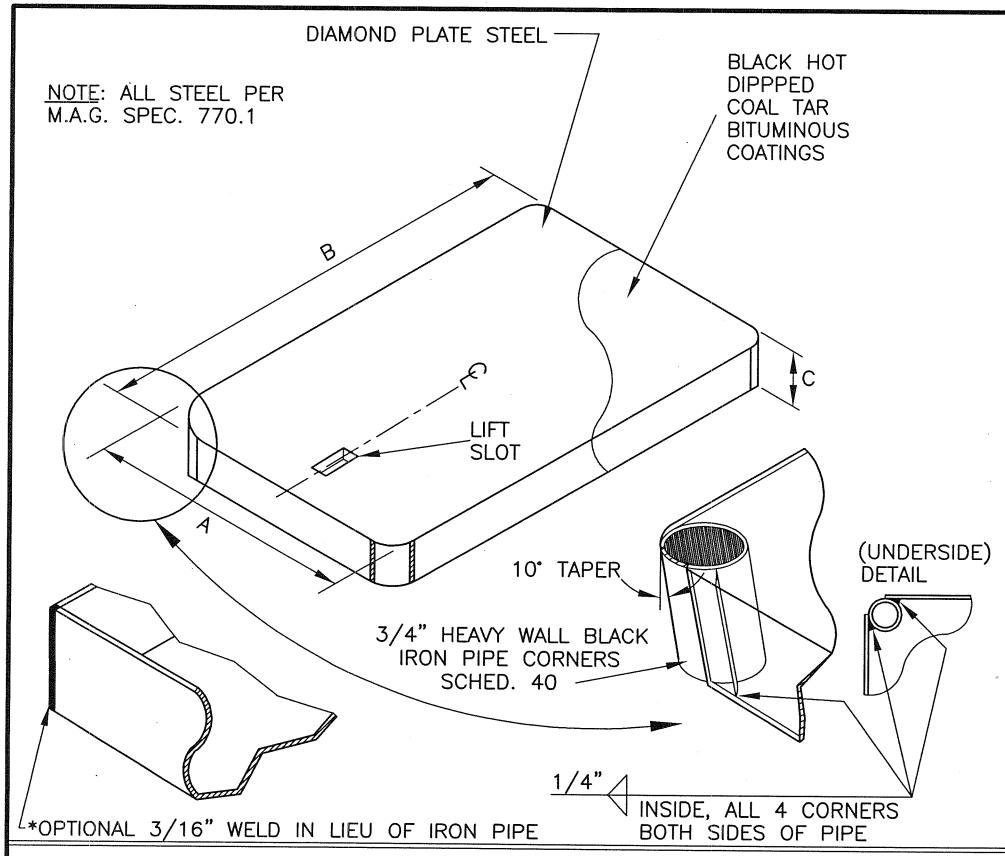
LETTERING DETAIL

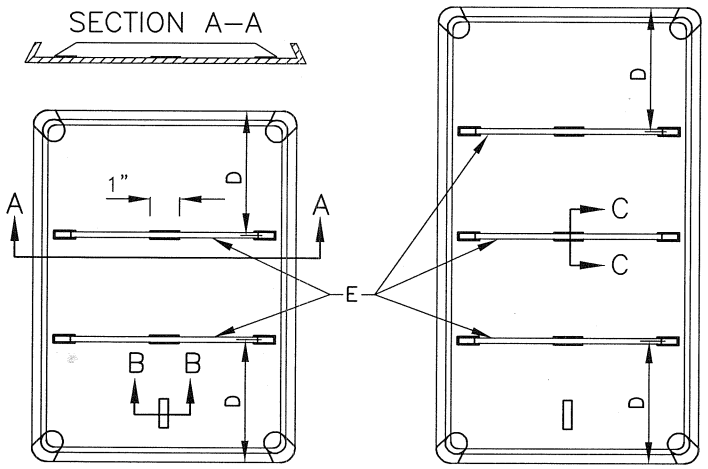
NOTES:

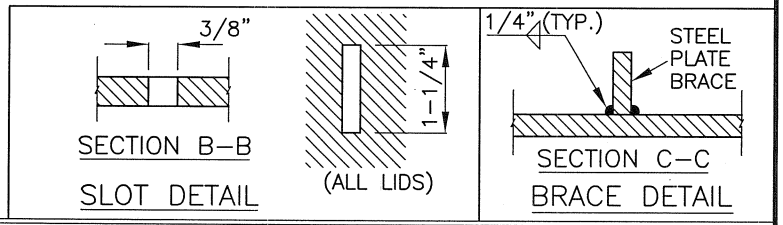
1. FOR CASTING SPECIFICATIONS, SEE SECT. 787.
2. THE BEARING EDGES OF THESE CASTINGS SHALL BE MACHINED TO INSURE A FULL BEARING ON A FLAT SURFACE.

DETAIL NO.			REVISED	DETAIL NO.
314	MARICOPA ASSOCIATION of GOVERNMENTS STANDARD DETAIL ENGLISH	CAST IRON WATER METER BOX COVER NO. 5		314

STEEL WATER METER BOX COVER





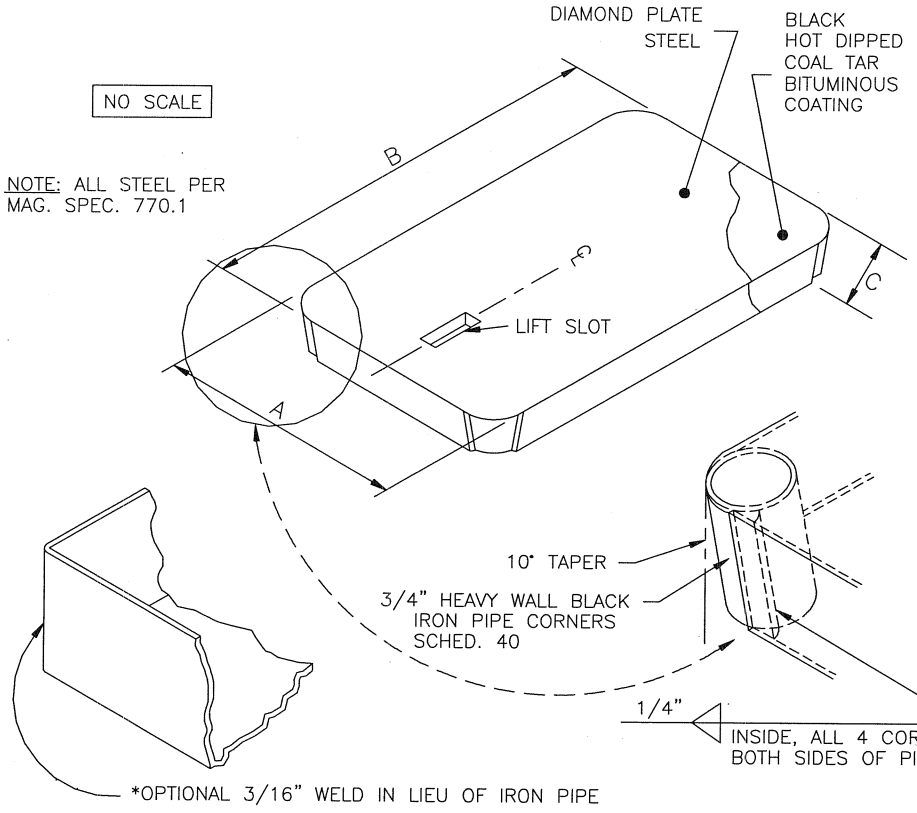


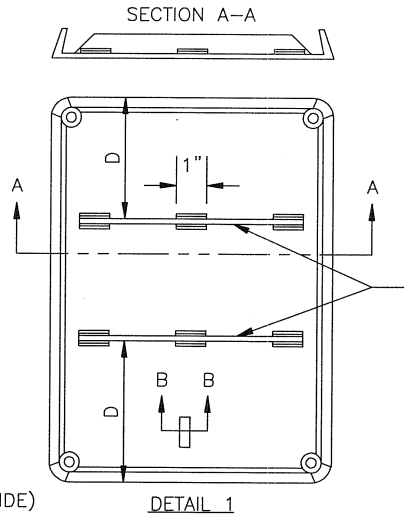
SPECIFICATIONS

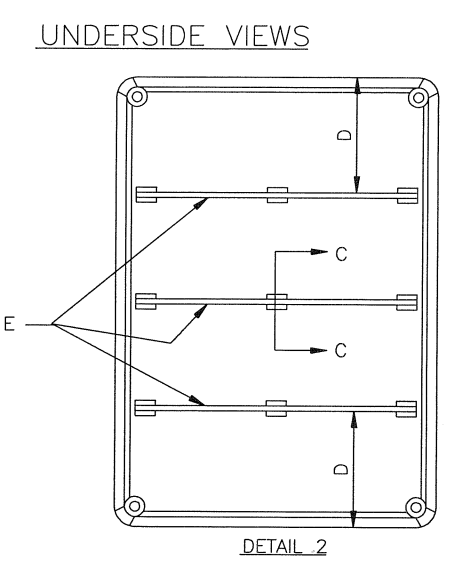
NO.	A	B	C	D	E	BRACES	WEIGHT	MATERIAL
1	9"	15 7/8"	1 3/8"	NONE	NONE	NONE	5 1/4 LBS.	14 GAGE
2	14 1/8"	21 3/4"	1 1/2"	6 1/2"	3/16" x 1 1/4" x 13 1/8"	DETAIL 1	12 3/4 LBS.	12 GAGE
3	15 1/4"	26 1/4"	1 1/2"	8 1/4"	3/16" x 1 1/4" x 14 1/4"	DETAIL 1	19 1/4 LBS.	12 GAGE
4	19 1/2"	30"	1 1/2"	7 1/8"	3/16" x 1 1/4" x 18 3/4"	DETAIL 2	33 LBS.	11 GAGE

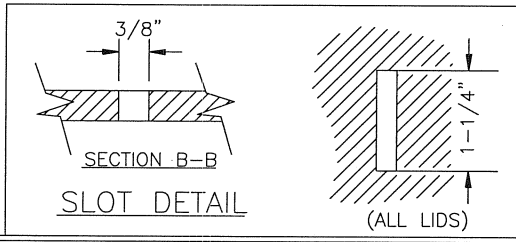
DETAIL NO. M–49.4

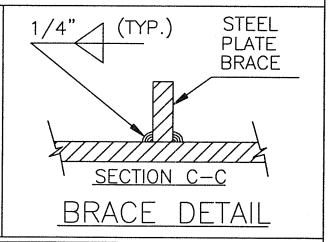
EFF. 07/01/97











SPECIFICATIONS

NO.	A	B	C	D	E	BRACES	WEIGHT	MATERIAL
1	9"	15–7/8"	1–3/8"	NONE	NONE	NONE	5–1/4 LBS.	14 GAGE
2	14–1/8"	21–3/4"	1–1/2"	6–1/2"	3/16" X 1–1/4" X 13–1/8"	DETAIL 1	12–3/4 LBS.	12 GAGE
3	15–1/4"	26–1/4"	1–1/2"	8–1/4"	3/16" X 1–1/4" X 14–1/4"	DETAIL 1	19–1/4 LBS.	12 GAGE
4	19–1/2"	30"	1–1/2"	7–1/8"	3/16" X 1–1/4" X 18–3/4"	DETAIL 2	33 LBS.	11 GAGE

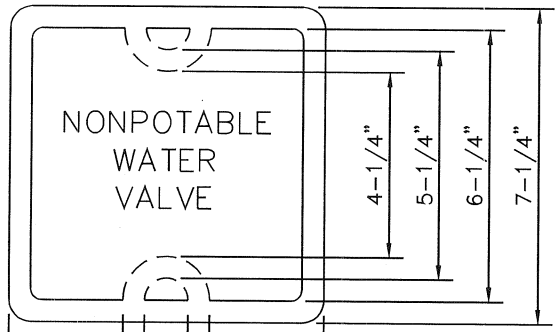
*REV. 11/1/84

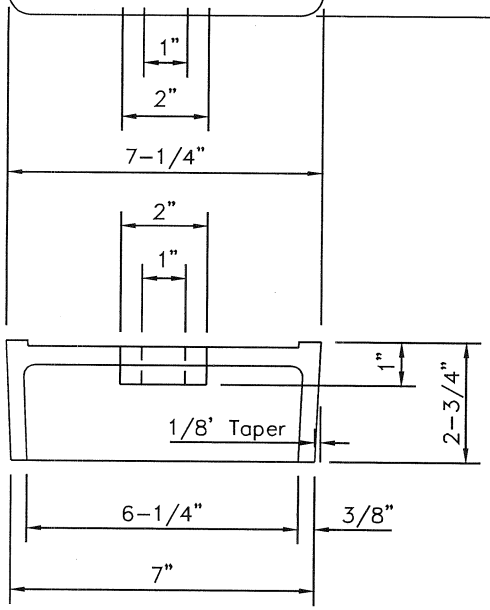
DETAIL NO.			APPROVED	DETAIL NO.
P1315	City of Phoenix STANDARD DETAIL	STEEL WATER METER BOX COVER	CITY ENGINEER — 07-09-92 DATE	P1315

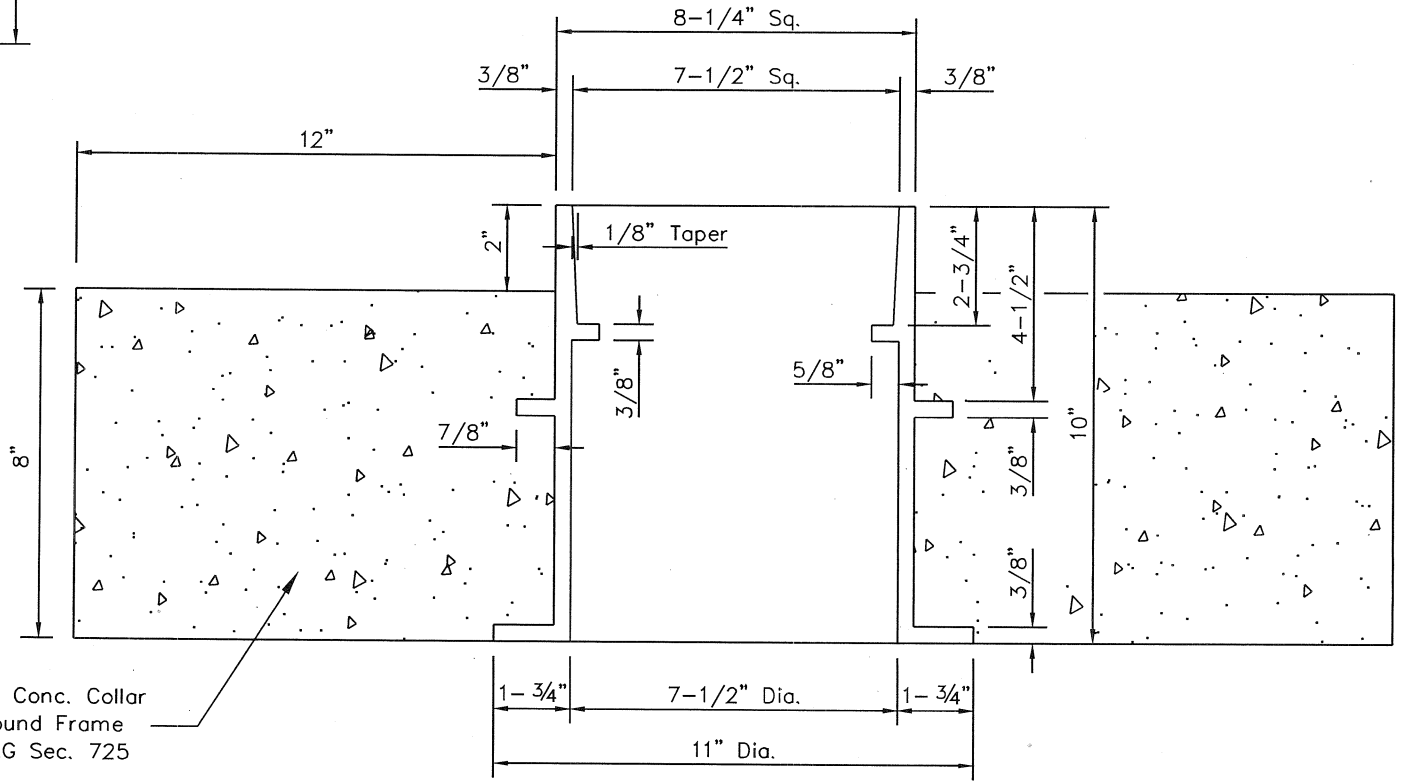
REVISED 2/22/99

NOTES

1. Round bottom for riser pipe, square top for cover.
2. All materials shall be cast iron per ASTM A48, Class 30B.
3. Nonpotable water valve box to be installed per M.A.G. Std. Detail 391.
4. The cast iron lid shall be marked "Nonpotable Water Valve" on the top side. Letters shall be 1" each and raised 1/8".

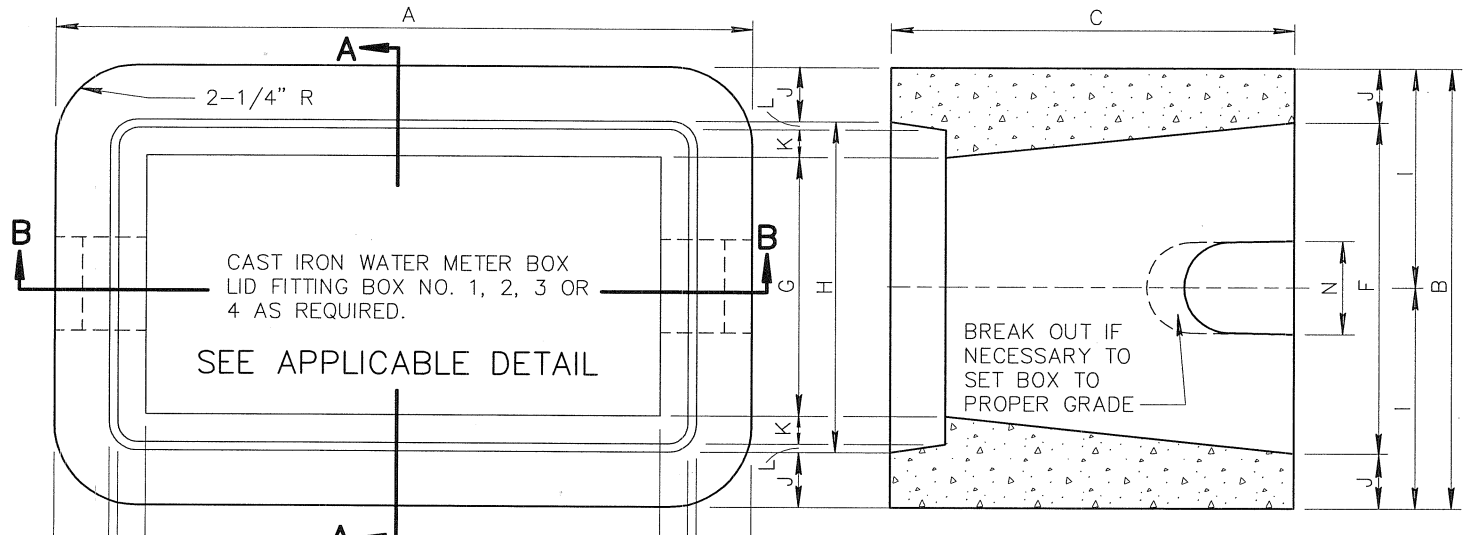


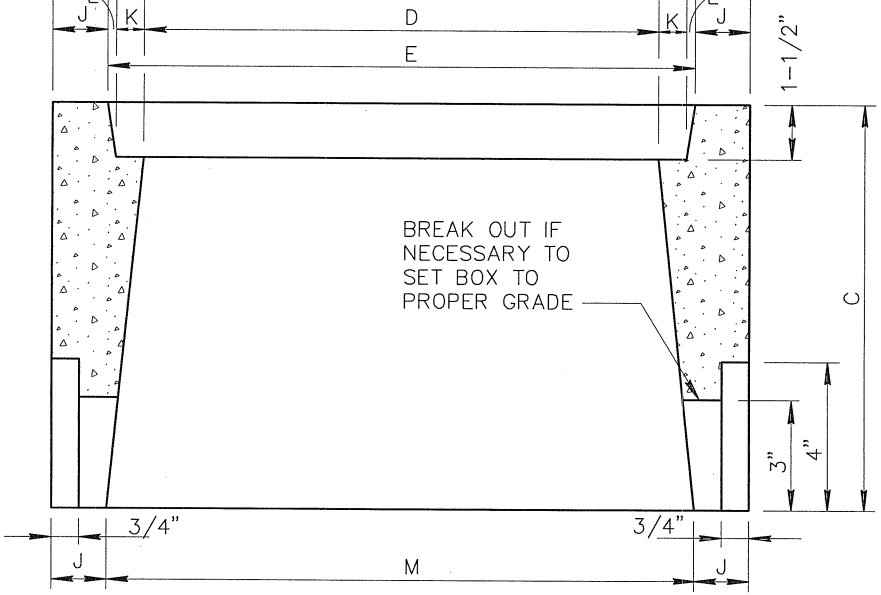




Class 'B' Conc. Collar
All Around Frame
Per MAG Sec. 725

DETAIL NO. 2315	City of Scottsdale Standard Details	APPROVED BY: Scottsdale Standards & Specifications Committee	NONPOTABLE WATER VALVE BOX & COVER	DETAIL NO. 2315





NOTES:

1. THE METER BOXES SHALL CONFORM TO THE DIMENSIONS AS SHOWN AND SHALL BE MADE OF PORTLAND CEMENT CONCRETE POURED AND TAMPED (OR VIBRATED) IN TRUE FORMS.
2. USE CLASS 'AA' CONCRETE PER SECT. 725.

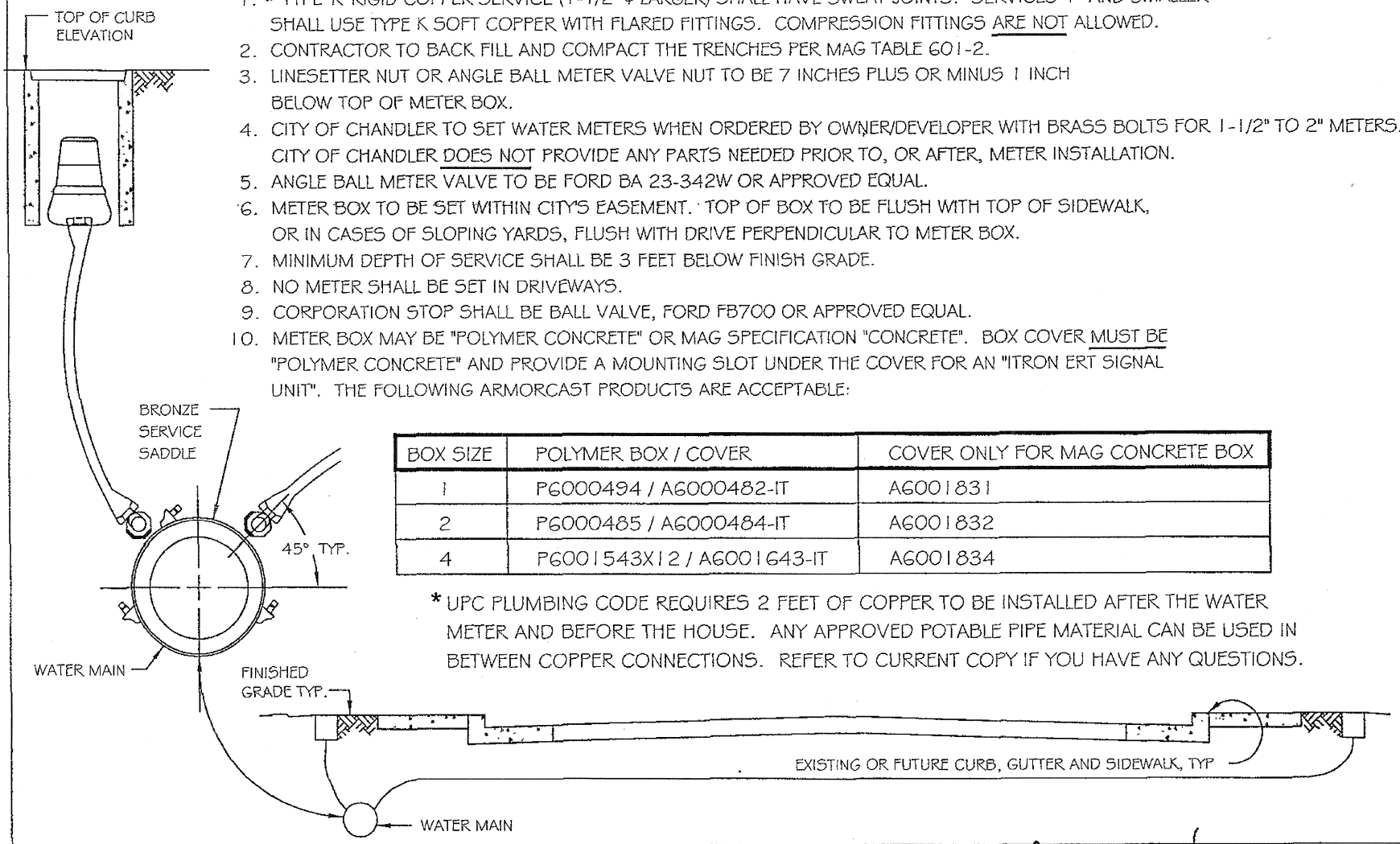
METER BOX DIMENSIONS				
DIMS	BOX NUMBER			
	1	2	3	4
A	19"	24-1/2"	29-1/2"	33-1/2"
B	12"	16-3/4"	18-1/2"	22-3/4"
C	11"	12"	13"	12"
D	14"	19"	23-3/4"	27-3/4"
E	16"	22"	26-1/2"	30-1/2"
F	9"	13-1/4"	15"	19-3/4"
G	7"	11-1/4"	12-3/4"	17"
H	9"	14-1/4"	15-1/2"	19-3/4"
I	6"	8-3/8"	9-1/4"	11-3/8"
J	1-1/2"	1-3/4"	1-3/4"	1-1/2"
K	3/4"	1-1/8"	1"	1"
L	1/4"	3/8"	3/8"	3/8"
M	16"	21"	25-1/2"	30-1/2"
N	2-1/2"	3-1/2"	4"	4"
	5/8" OR 3/4" METER	1" METER	1-1/2" METER	2" METER

DETAIL NO.			REVISED	DETAIL NO.
320	MARICOPA ASSOCIATION of GOVERNMENTS STANDARD DETAIL ENGLISH	CONCRETE WATER METER BOXES		320

CAUTION: BEFORE SERVICES ARE INSTALLED, THE DRIVEWAY LOCATIONS SHOULD BE VERIFIED AND THE SERVICE CONSTRUCTED TO MISS THEM.

NOTES:

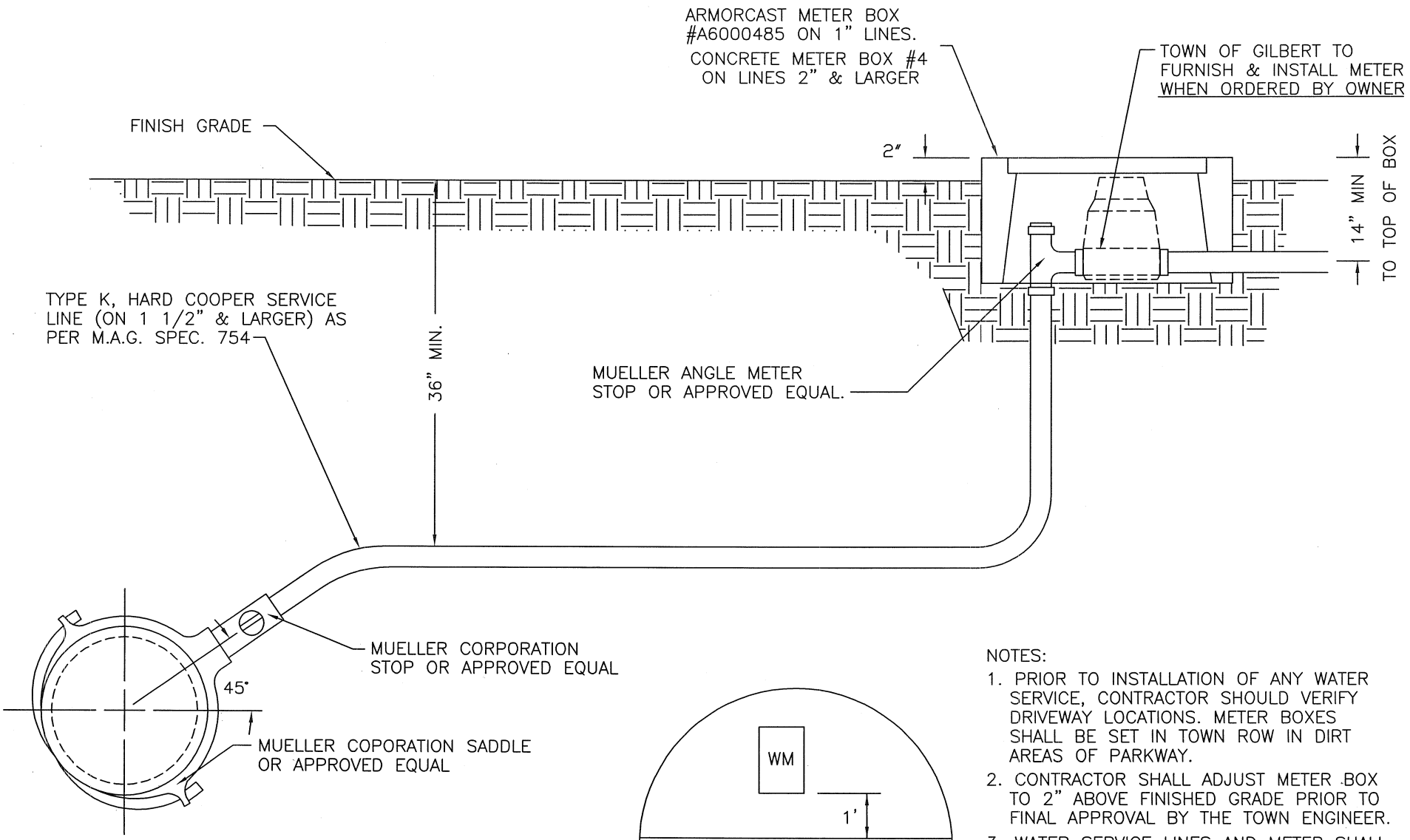
1. * TYPE 'K' RIGID COPPER SERVICE (1-1/2" & LARGER) SHALL HAVE SWEAT JOINTS. SERVICES 1" AND SMALLER SHALL USE TYPE K SOFT COPPER WITH FLARED FITTINGS. COMPRESSION FITTINGS ARE NOT ALLOWED.
2. CONTRACTOR TO BACK FILL AND COMPACT THE TRENCHES PER MAG TABLE 601-2.
3. LINESETTER NUT OR ANGLE BALL METER VALVE NUT TO BE 7 INCHES PLUS OR MINUS 1 INCH BELOW TOP OF METER BOX.
4. CITY OF CHANDLER TO SET WATER METERS WHEN ORDERED BY OWNER/DEVELOPER WITH BRASS BOLTS FOR 1-1/2" TO 2" METERS. CITY OF CHANDLER DOES NOT PROVIDE ANY PARTS NEEDED PRIOR TO, OR AFTER, METER INSTALLATION.
5. ANGLE BALL METER VALVE TO BE FORD BA 23-342W OR APPROVED EQUAL.
6. METER BOX TO BE SET WITHIN CITY'S EASEMENT. TOP OF BOX TO BE FLUSH WITH TOP OF SIDEWALK, OR IN CASES OF SLOPING YARDS, FLUSH WITH DRIVE PERPENDICULAR TO METER BOX.
7. MINIMUM DEPTH OF SERVICE SHALL BE 3 FEET BELOW FINISH GRADE.
8. NO METER SHALL BE SET IN DRIVEWAYS.
9. CORPORATION STOP SHALL BE BALL VALVE, FORD FB700 OR APPROVED EQUAL.
10. METER BOX MAY BE "POLYMER CONCRETE" OR MAG SPECIFICATION "CONCRETE". BOX COVER MUST BE "POLYMER CONCRETE" AND PROVIDE A MOUNTING SLOT UNDER THE COVER FOR AN "ITRON ERT SIGNAL UNIT". THE FOLLOWING ARMORCAST PRODUCTS ARE ACCEPTABLE:



BOX SIZE	POLYMER BOX / COVER	COVER ONLY FOR MAG CONCRETE BOX
1	P6000494 / A6000482-IT	A6001831
2	P6000485 / A6000484-IT	A6001832
4	P6001543X12 / A6001643-IT	A6001834

* UPC PLUMBING CODE REQUIRES 2 FEET OF COPPER TO BE INSTALLED AFTER THE WATER METER AND BEFORE THE HOUSE. ANY APPROVED POTABLE PIPE MATERIAL CAN BE USED IN BETWEEN COPPER CONNECTIONS. REFER TO CURRENT COPY IF YOU HAVE ANY QUESTIONS.

C-301 REPLACES **103A**	CITY OF CHANDLER STANDARD DETAIL	**WATER SERVICE INSTALLATION**	APPROVED: Elizabeth Lee Hamilton CITY ENGINEER DATE: January 10, 2002	DETAIL NO. **C-301** NTS



NOTES:

1. PRIOR TO INSTALLATION OF ANY WATER SERVICE, CONTRACTOR SHOULD VERIFY DRIVEWAY LOCATIONS. METER BOXES SHALL BE SET IN TOWN ROW IN DIRT AREAS OF PARKWAY.
2. CONTRACTOR SHALL ADJUST METER BOX TO 2" ABOVE FINISHED GRADE PRIOR TO FINAL APPROVAL BY THE TOWN ENGINEER.
3. WATER SERVICE LINES AND METER SHALL BE SIZED PER THE UPC CODE OR AWWA PRACTICES.

DETAIL NO. 62	TOWN OF GILBERT STANDARD DETAIL	1" TO 2" WATER SERVICE INSTALLATION	REVISED 1/2005	DETAIL NO. 62

STANDARD DETAIL G-642

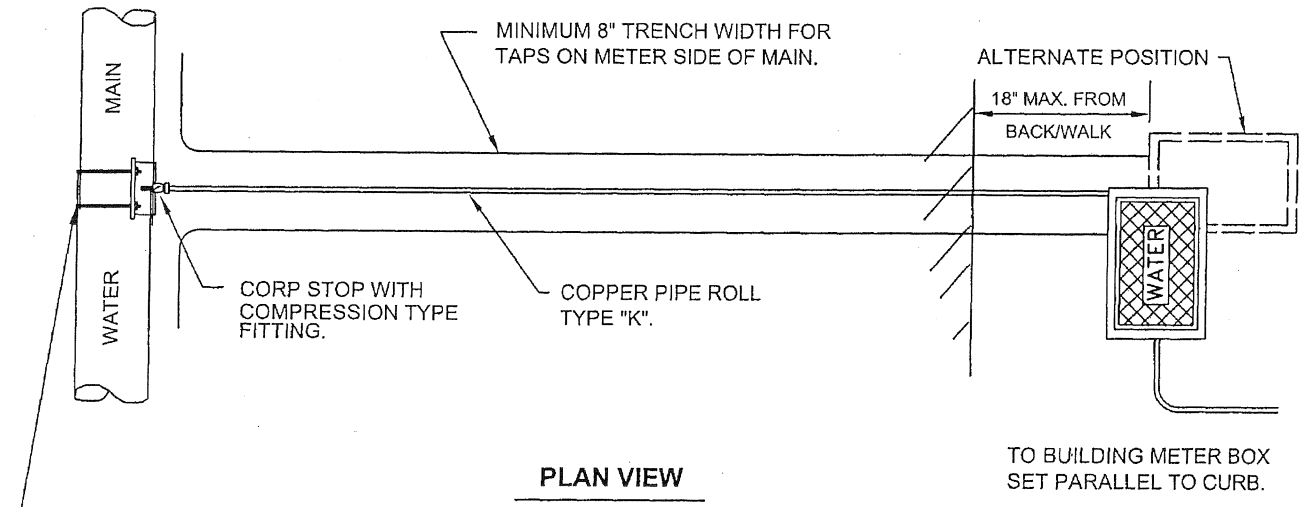
CITY OF GLENDALE
ENGINEERING

WATER SERVICE CONNECTIONS

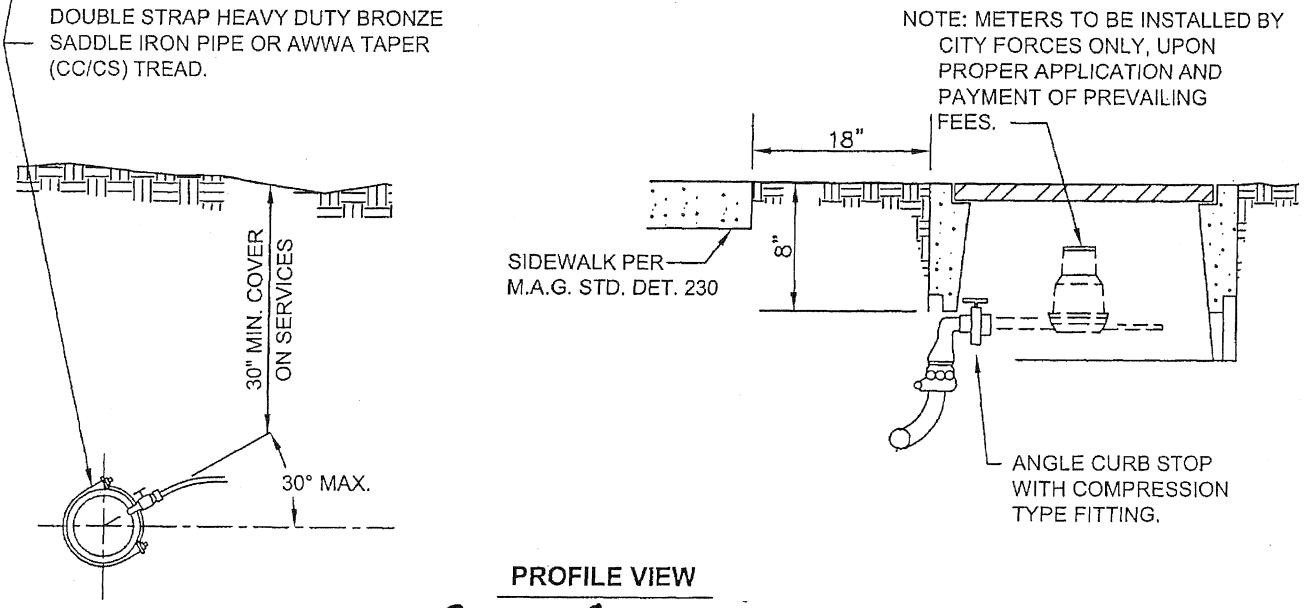
GLENDALE

FOR 1", 1-1/2" AND 2" WATER SERVICE CONNECTIONS TO 6" OR LARGER WATER MAINS.

NOTE:
1. THIS DETAIL IS APPLICABLE TO BOTH AUTHORIZED PERSONNEL OR DEVELOPERS CONTRACTORS.
2. ALL TAPS MUST BE MADE BY USING A SERVICE SADDLE AS SHOWN.
3. IF CONTRACTOR IS TO TAP THE MAIN AND INSTALL WATER SERVICES THEY SHALL INCLUDE THE CORP STOP, SERVICE PIPE, APPURTENANT FITTINGS, CURB STOP, METER BOX AND COVER.
4. TAP SIZE SHALL MATCH METER SIZE.



PLAN VIEW



PROFILE VIEW

APPROVED BY: Larry J. Brazier
CITY ENGINEER

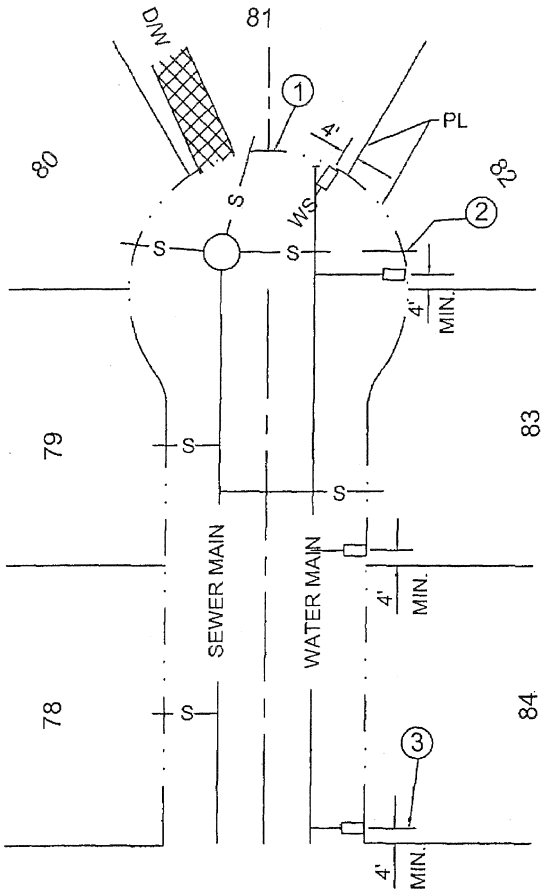
DATE 6/28/02

REVISED : JUNE 2002

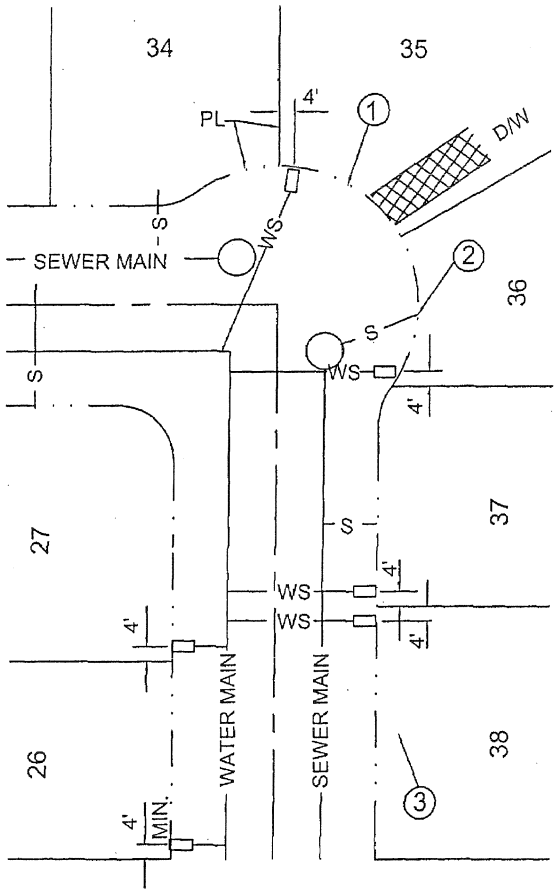
STANDARD DETAIL G-643

CITY OF GLENDALE
ENGINEERING

WATER SERVICE AND SEWER SERVICE LOCATIONS



TYPICAL CUL-DE-SAC



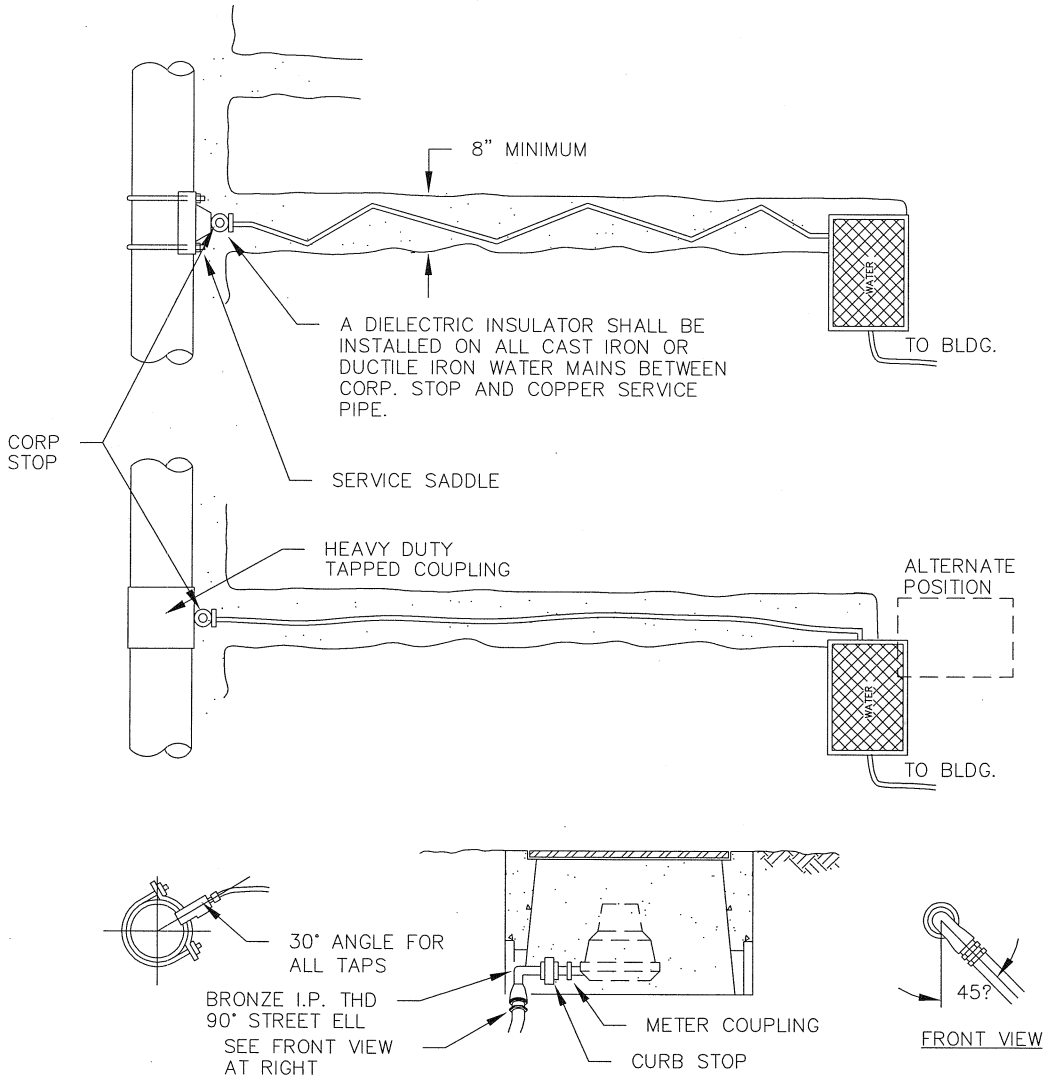
TYPICAL DOG-LEG

NOTES:

1. IT IS THE DEVELOPERS RESPONSIBILITY TO LOCATE WATER SERVICE AT LEAST 4' FROM PROPERTY LINE OF LOT. LOCATION SHOULD NOT CONFLICT WITH DRIVEWAYS OR SEWER TAP. CURB STOP TO BE 18" BEHIND AND 8" BELOW FINISHED SIDEWALK.
2. SEWER TAP IS TO BE LOCATED 5' FROM CENTER OF LOT.
3. ALL SEWER TAPS SHALL BE STATIONED USING THE CLOSEST DOWNSTREAM MANHOLE AS STATION 0+00. SEE SECTION 8.25.
4. ALL SEWER TAPS INTO MANHOLES SHALL BE DIMENSIONED FROM THE PROPERTY LINE.
5. IN CASES WHERE DRIVEWAYS MAY CONFLICT WITH NORMAL PLACEMENTS OF WATER AND/OR SEWER SERVICES, DEVELOPERS MAY PROPOSE ALTERNATIVE LOCATIONS HOWEVER, IN NO CASE WILL WATER SERVICES BE CLOSER THAN 4' OR SEWER SERVICES CLOSER THAN 6' TO PROPERTY LINES.

APPROVED BY: Larry J Broyles — 6/28/02
CITY ENGINEER — DATE

REVISED : JUNE 2002



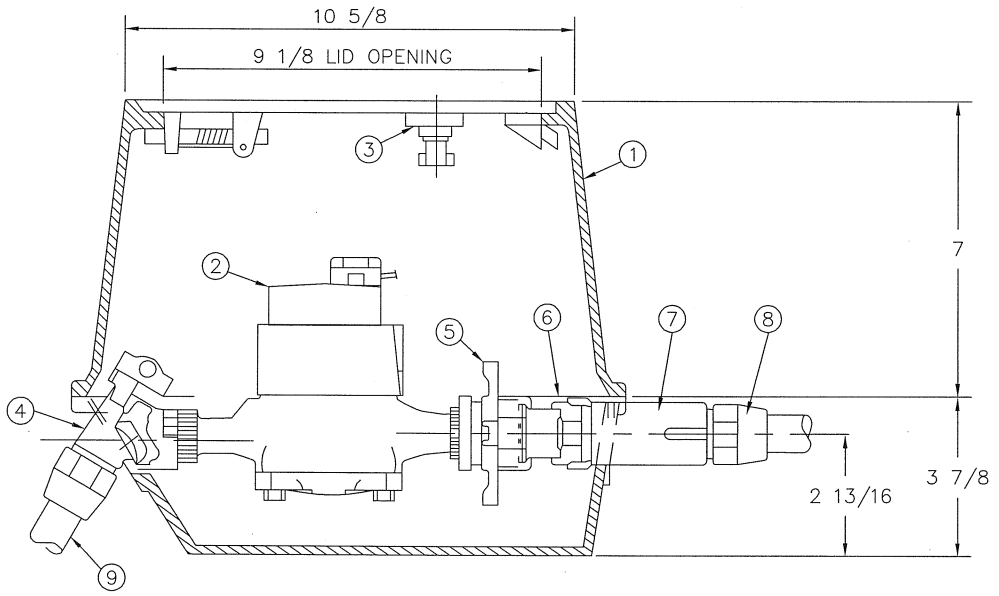
GENERAL NOTES

1. NEW WATER SERVICE TAPS SHALL BE INSTALLED USING AN ALL–BRONZE DOUBLE–STRAP TAPPING SADDLE OR A TAPPED COUPLING.
2. 30" MINIMUM COVER IS REQUIRED FOR SERVICE LINES.
3. WATER SERVICE INCLUDES THE CORP. STOP, SERVICE PIPE, APPURTENANT FITTINGS, CURB STOP, METER BOX & COVER. APPROVED WATER SERVICE COMPONENTS ARE LISTED IN CITY OF PHOENIX SUPPLEMENTS
4. DELETED
5. ONLY AUTHORIZED PERSONAL OF THE WATER & WASTEWATER DEPT. SHALL INSTALL THE SERVICE CONNECTION FOR ANY EXISTING CITY WATER MAIN SERVING ALL OR PART OF A NEW SUBDIVISION.
6. WATER METER WILL BE INSTALLED BY CITY FORCES.
7. FOR 3/4" THROUGH 2" SERVICE USE COPPER PIPE.
8. FOR WATER METER LOCATION SEE CITY OF GOODYEAR DETAIL G–3313–1

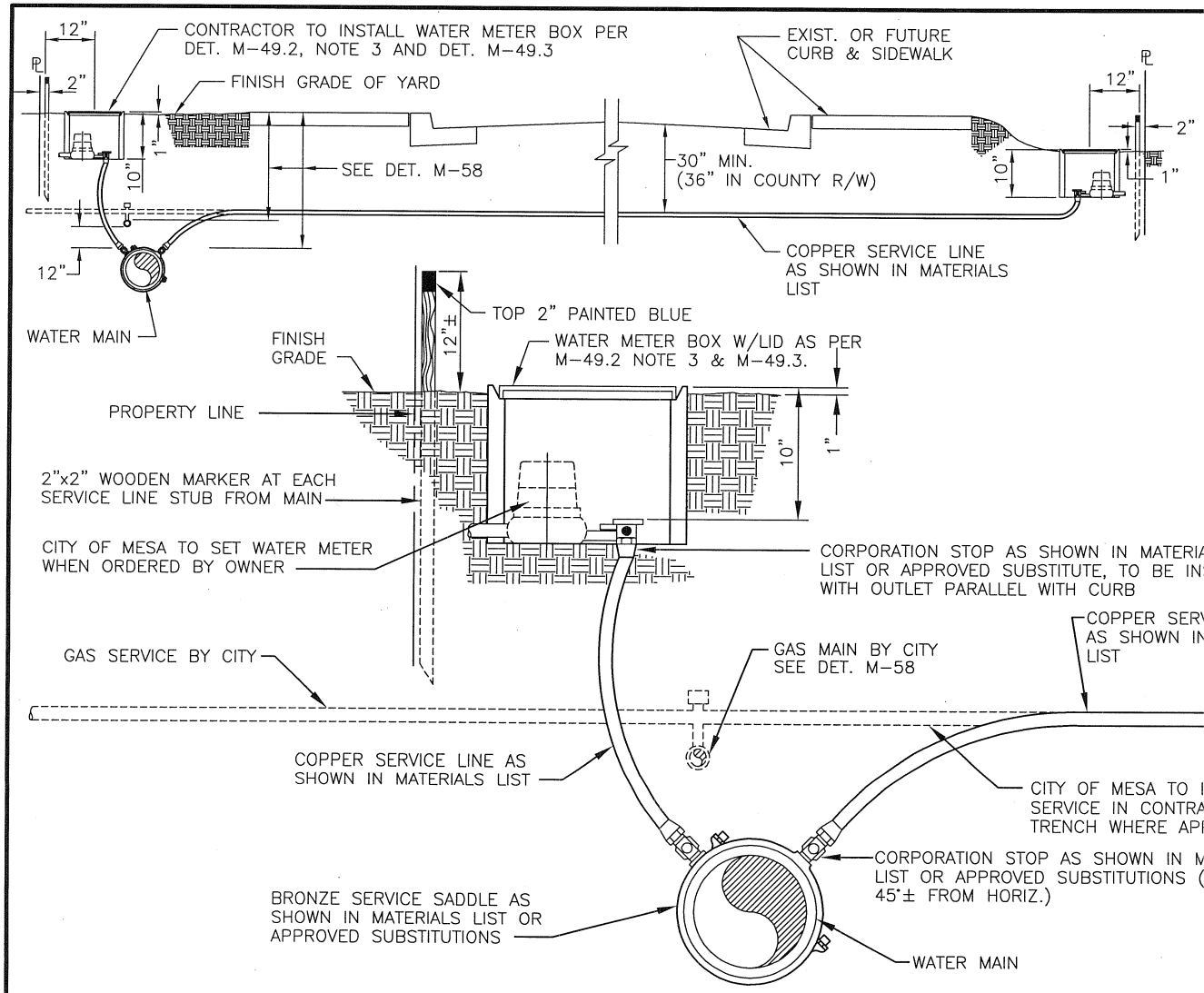
DETAIL NO. G-3310	CITY OF GOODYEAR STANDARD DETAIL	APPROVED BY: Goodyear Standards and Policies Committee 7/97	WATER SERVICE CONNECTIONS	DETAIL NO. G-3310

LIST OF MATERIALS

1. METER BOX–FOR MODEL YM HC 241–243–T–G OR APPROVED EQUAL
2. SENSUS–SRII–TRPL 3/4" x 3/4" SHORT WATER METER
3. TOUCHREAD DEVICE
4. ANGLE OR STRAIGHT YOKEBOX VALVE
5. EXPANSION CONNECTION ASSEMBLY
6. CARTRIDGE ACCESS CAP
7. DUAL CARTRIDGE CHECK VALVE
8. CUSTOMER CONNECTION POINT
9. COPPER SERVICE LINE (1" MIN)



DETAIL NO. G–3312	CITY OF GOODYEAR STANDARD DETAIL	APPROVED BY: Goodyear Standards and Policies Committee 7/97	3/4" WATER SERVICE METER AND BOX INSTALLATION	DETAIL NO. G–3312



NOTES

1. ENGINEER TO SET "BLUE TOPS" FOR ALL WATER METER BOXES TO MATCH BACK OF SIDEWALK GRADE OR TOP OF CURB GRADE IF CURB ONLY. INSTALL TOP OF SERVICE CURB STOP 10" BELOW "BLUE TOP", EXCEPT FOR SPECIAL CONDITIONS (IRRIG., LARGE METER, ETC.).
2. MECHANICAL COUPLINGS FOR SERVICE EXTENSIONS WILL BE ALLOWED ON A PER INSTALLATION BASIS WITH APPROVAL FROM UTILITY CONSTRUCTION.
3. NORMAL INSTALLATION OF WATER METERS AND BOXES SHALL BE PERPENDICULAR TO THE CENTER LINE OF THE STREET. HOWEVER, WHEN A SINGLE METER IS INSTALLED IN A SUBDIVISION WITH PARALLEL PLACED METERS AND BOXES, THE NEW METER AND BOX MAY BE INSTALLED THE SAME AS THE REST OF THE SUBDIVISION (PARALLEL).

CAUTION!

BEFORE SERVICES ARE INSTALLED, THE DRIVEWAY LOCATIONS SHOULD BE VERIFIED AND THE SERVICE CONSTRUCTED TO MISS THEM.

WATER SERVICE INSTALLATION

DETAIL NO. M-49.1

REV. 09/27/99

Materials List	Service Line Sizes			
	3/4"	1"	1 1/2"	2"
Service Saddle ⚠1 (with I.P. threads)	Ford 101BIP single strap Jones J–975 single strap Mueller BR1B single strap AY McDonald 3816 single strap AY McDonald 3826 double strap		Ford 202BIP double strap Jones J–979 Mueller BR2B AY McDonald 3826 double strap	
Corporation Stop (Ball Style) (with I.P. threads)	AY McDonald 4704B–22 Ford FB–1100 Jones J–1935 Mueller P–25028		AY McDonald 4704B–22 Ford FB–1100 Jones J–1935 Mueller P–25028	
Curb Stop with Locking Wings (Ball Style)	AY McDonald 4602B–22 ALL SIZES Ford BA43W 5/8"/3/4"/1" — BFA43W 1 1/2"/2" Jones J–1963W 3/4"/1"X3/4"/1" — J–1975W 1 1/2"/2" Mueller P–24258 5/8"/5/8"X3/4"/3/4"/1" — P–24276 1 1/2"/2" PJX Meter Coupling 3/4"/1" PJX Flange 1 1/2"/2"			
Service Line	Copper ⚠2 (Type K–Soft)	Copper ⚠2 (Type K–Soft)	Copper ⚠2 (Type K–Hard)	Copper ⚠2 (Type K–Hard)

⚠1 Single–strap service saddles are permitted on water mains 8" and smaller. Double–strap service saddles are required on water mains larger than 8". Service saddles shall be all–brass and have I.P. threads. Contractor shall submit any proposed alternate service saddle for review and approval prior to installation.

⚠2 All Copper pipe joints shall be soldered. The solder alloy shall comply with ASTM B 32 having a silver content of not less than 3.4% intended for joining copper pipes for potable water systems (Grades Sn 94, Sn 95, or Sn 96). The flux shall be type OA for general soldering on copper.

1. City of Mesa does not allow flared–type connections on the City side of the meter.
2. NO tapped couplings will be allowed.
3. Water meter box and lid:
   A. Inverted plastic water meter box and lid may be used for 5/8", 3/4", and 1" meters. Manufactured by:
      International Diversified Industries
      Brooks Plastics – 1017 Series
      Amatek–Plymouth Super Flexon®

   B. Concrete water meter box with cast iron lid as per M.A.G. Std. Detail 320, or steel lids per Mesa Standard Detail M–49.4.
4. See M–29 for 1 1/2" and 2" water meters.
5. Branches before the meter are not allowed; i.e. only one meter per service tap except for landscape meters as shown in detail M–49.3.
6. For 3/4" and 1" services, a minimum of 1 1/2 feet copper "pigtail" on customer's side of meter before changing to other material. For 1 1/2" & 2" services, a minimum of 4 feet copper "pigtail" on customer's side before changing to other material.

WATER SERVICE INSTALLATION MATERIALS LIST

DETAIL NO. M–49.2

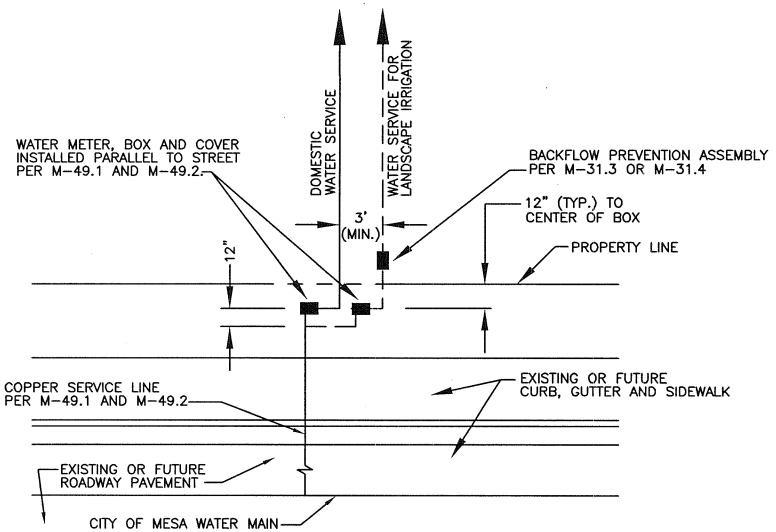
REV. 03/07/06

NOTES:

1. SERVICE LINE BETWEEN WATER METERS AND WATER MAIN SHALL BE COPPER PER M-49.1 AND M-49.2.
2. NORMAL INSTALLATION OF WATER METERS AND BOXES SHALL BE PERPENDICULAR TO THE CENTER LINE OF THE STREET. HOWEVER, WHEN A SINGLE METER IS INSTALLED IN A SUBDIVISION WITH PARALLEL PLACED METERS & BOXES, THE NEW METER AND BOX MAY BE INSTALLED THE SAME AS THE REST OF THE SUBDIVISION (PARALLEL).

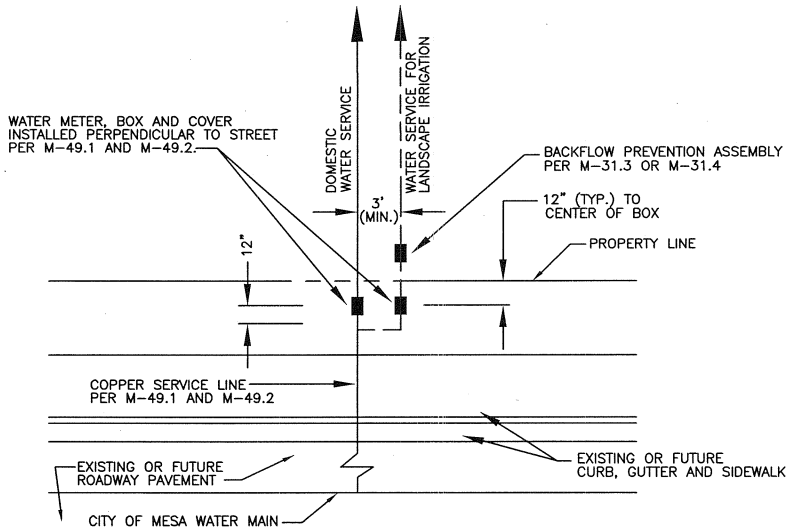
SINGLE METER INSTALLATION

MANIFOLD METER INSTALLATION



PLAN VIEW – PARALLEL INSTALLATION

N.T.S.



PLAN VIEW – PERPENDICULAR INSTALLATION

N.T.S.

SINGLE AND MANIFOLD WATER METER INSTALLATIONS

DETAIL NO. M-49.3

REV. 11/22/04

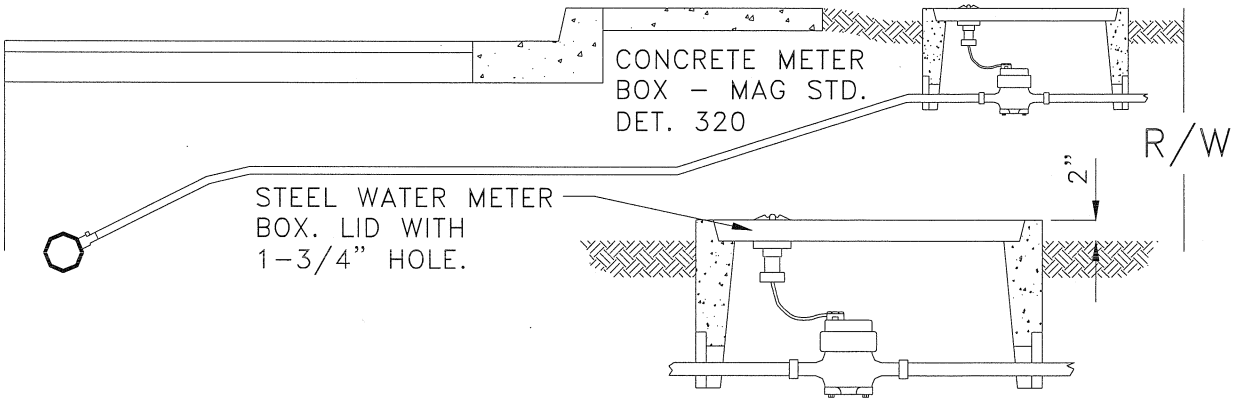
PEORIA DETAIL 325

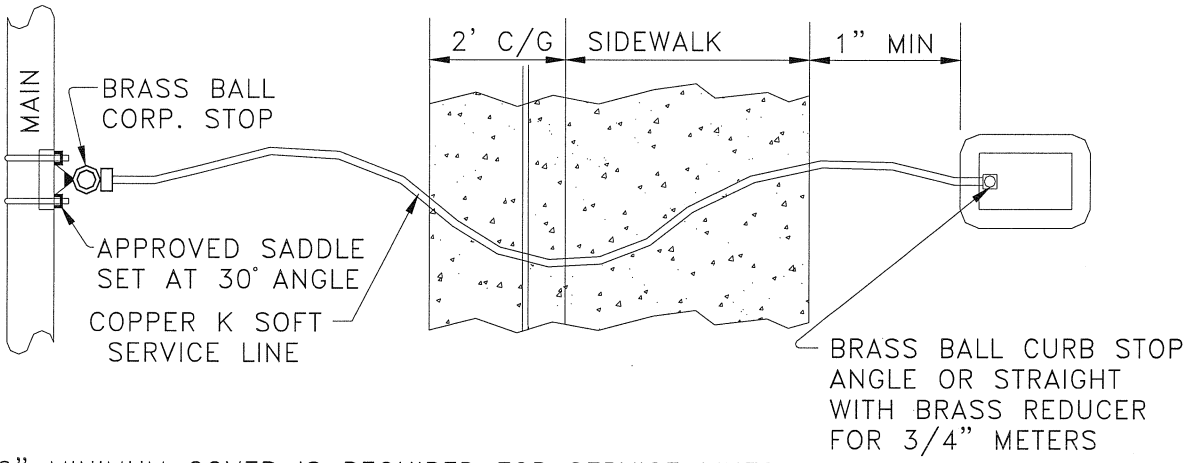
WATER METER BOX LOCATION AND CONSTRUCTION

APPROVALS:

CITY ENGINEER DATE

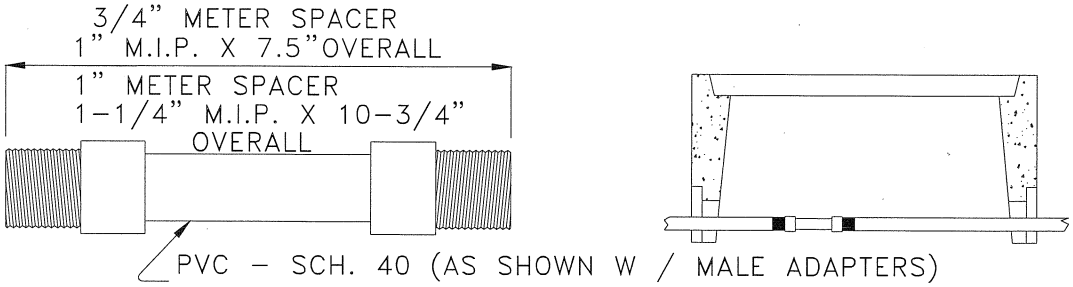
UTILITIES DIRECTOR DATE





1. 30" MINIMUM COVER IS REQUIRED FOR SERVICE LINES.
2. NO COUPLINGS ALLOWED ON SERVICE LINE.
3. FOR CUL–DE–SAC LOTS ONLY, THE WATER METER SHALL BE PLACED AT THE BACK OF THE SIDEWALK.
4. ALL WATER METER BOXES TO BE LEVEL WITH THE SIDEWALK AND 2 INCHES ABOVE FINISHED GRADE.
5. ALLOWABLE SERVICE LINE SIZES: 1", 1–1/2" & 2".
6. ALL MATERIAL SHALL CONFORM TO THE LATEST MAG SPECIFICATIONS.

CONSTRUCTION SERVICE WATER METER BY–PASS



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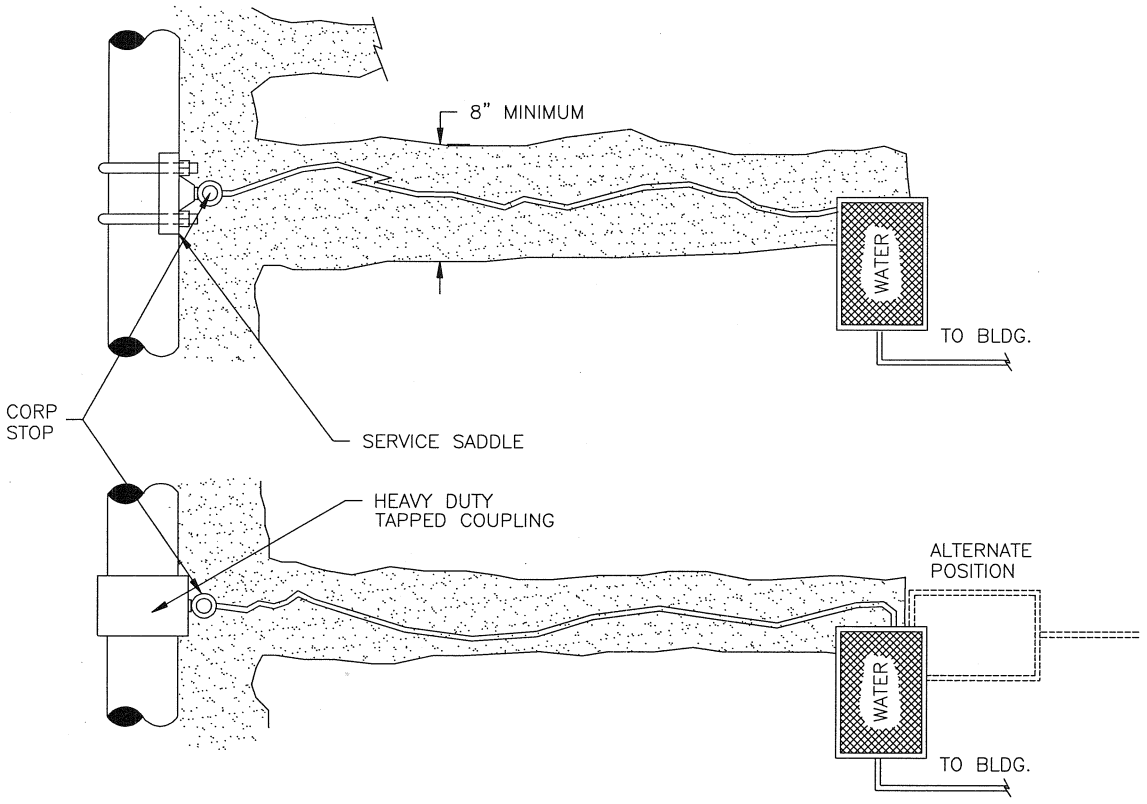
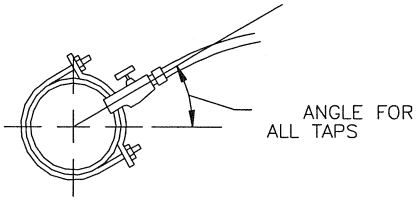
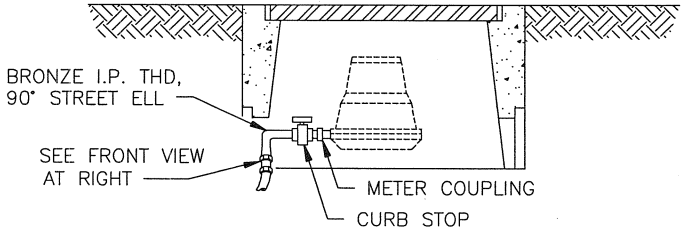
07/15/98







FRONT VIEW

GENERAL NOTES

**1. NEW WATER SERVICE TAPS SHALL BE INSTALLED USING AN ALL–BRONZE DOUBLE–STRAP TAPPING SADDLE OR A TAPPED COUPLING.

2. 30" MINIMUM COVER IS REQUIRED FOR SERVICE LINES.

3. WATER SERVICE INCLUDES THE CORP. STOP, SERVICE PIPE, APPURTENANT FITTINGS, CURB STOP, METER BOX & COVER. APPROVED WATER SERVICE COMPONENTS ARE LISTED IN CITY OF PHOENIX SUPPLEMENTS.

***4. DELETED

**5. ONLY AUTHORIZED PERSONNEL OF THE WATER & WASTEWATER DEPT. SHALL INSTALL THE SERVICE CONNECTION FOR ANY EXISTING CITY WATER MAIN SERVING ALL OR PART OF A NEW SUBDIVISION.

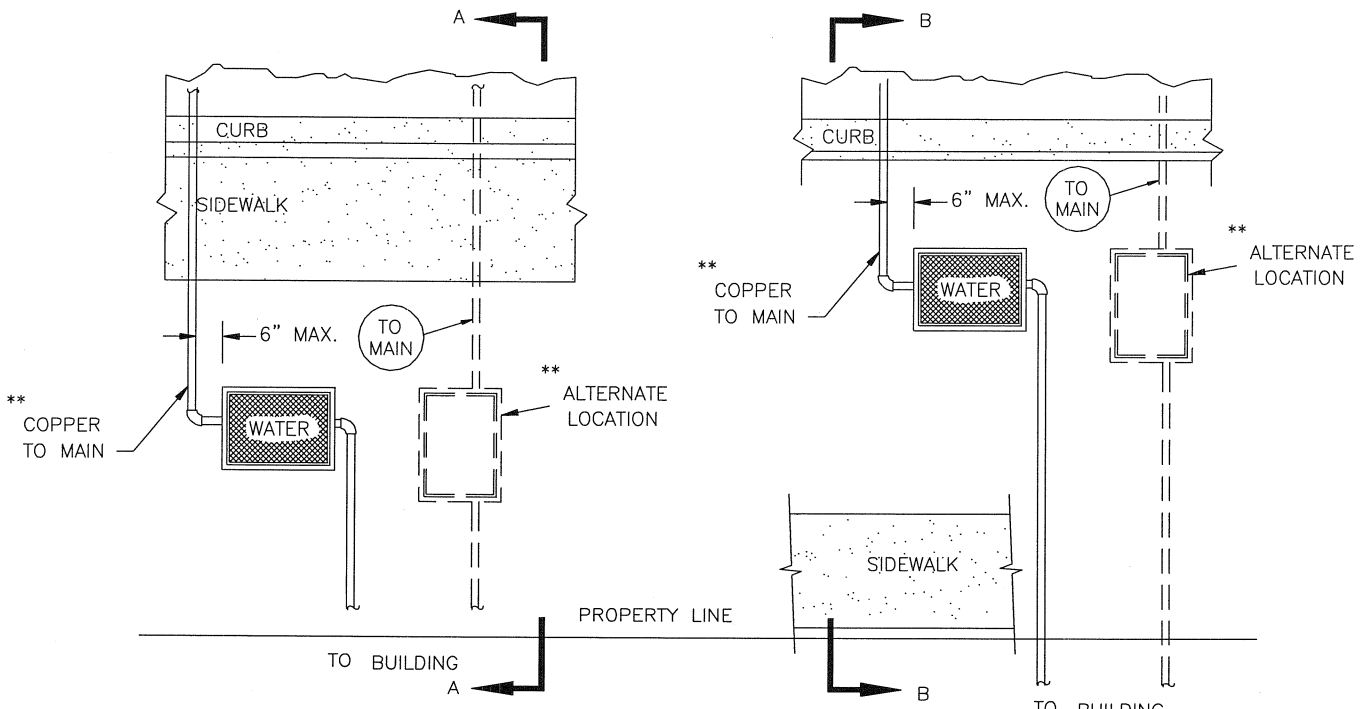
6. WATER METER WILL BE INSTALLED BY CITY FORCES.

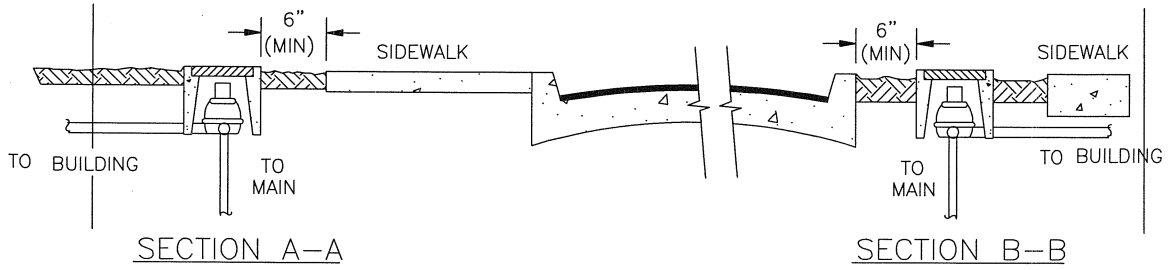
***7. FOR 3/4" THROUGH 2" SERVICE USE COPPER PIPE.

8. FOR WATER METER LOCATION SEE CITY OF PHOENIX DETAIL P1363.

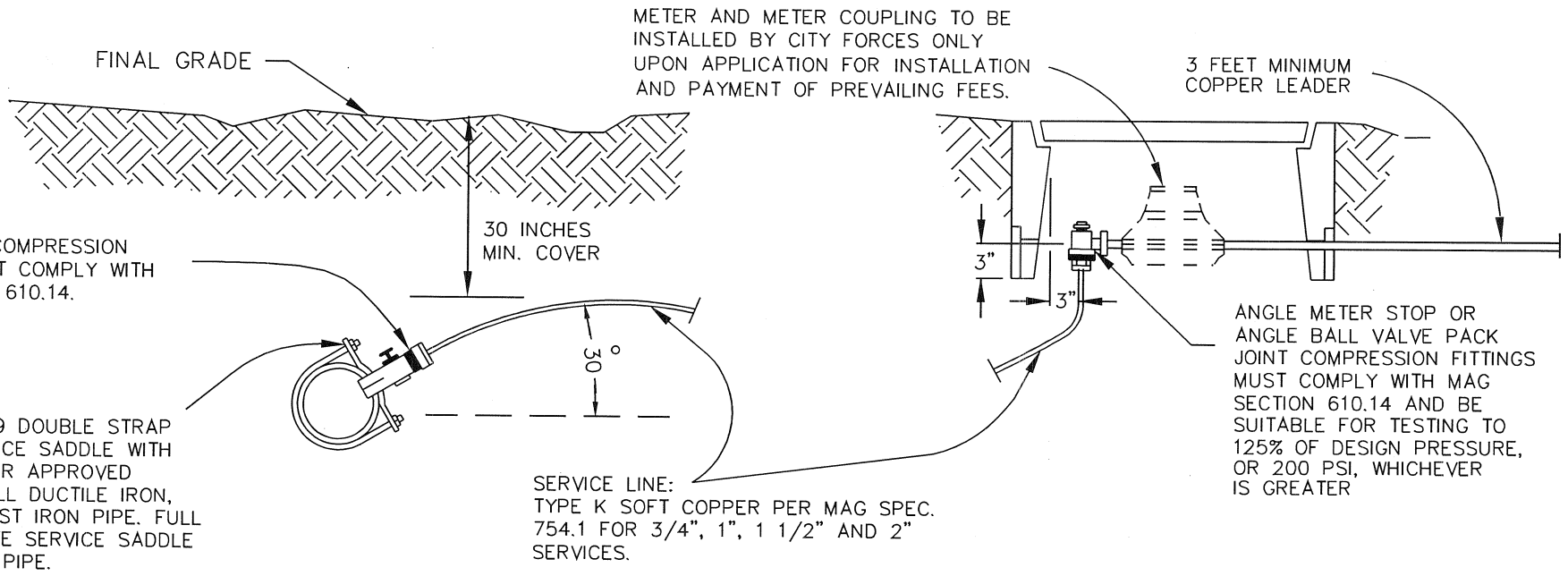
***REV. 12/5/88
**REV. 10/30/86
*REV. 11/1/84

DETAIL NO.				DETAIL NO.
P1342	City of Phoenix STANDARD DETAIL	WATER SERVICE CONNECTIONS	APPROVED Kenny W Hann CITY ENGINEER — 8-31-98 DATE	P1342





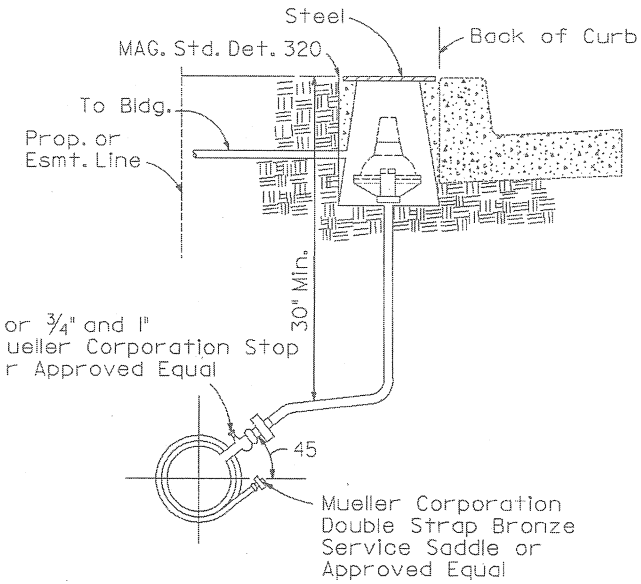
DETAIL NO. P1363	City of Phoenix STANDARD DETAIL	WATER METER LOCATION	APPROVED CITY ENGINEER	07-03-00 DATE	DETAIL NO. P1363



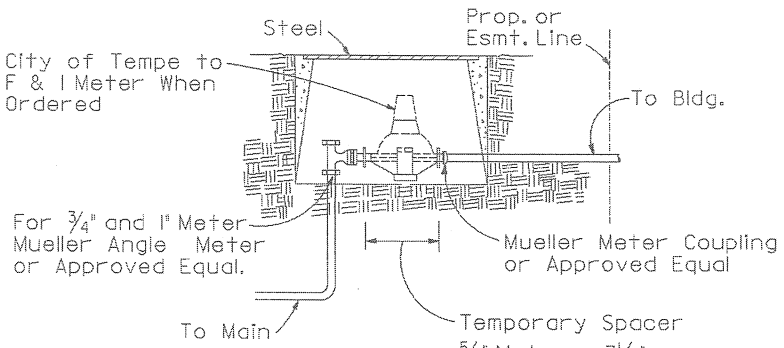
REVISED 4/12/05

NOTE:
1. All taps must be made using a service saddle.
2. All service line sizes shall have the pack joint compression fittings for corp. stops and meter stops.
3. Where a contractor is installing new water lines, he shall also install the water service connection. The installation shall include the service saddle, corp. stop, service pipe, appurtenant fittings, meter stop, concrete meter box and box cover, per M.A.G. Specifications.
4. Copper service lines in the 3/4", 1", 1 1/2", and 2" sizes that cross streets will be one continuous piece. Only with the express written consent of Water & Wastewater Operations will joints be permitted under a road. When this occurs, pack joint fittings will be required; no soldered joints will be permitted.
5. When all or part of a development is to be served by existing City of Scottsdale water mains, only authorized City of Scottsdale Water and Wastewater Operations personnel shall install the water service connection.
6. Rough grade shall be set to 1 ½ inches below top of meter box. Final landscape grade shall be set flush to top of meter box

DETAIL NO. 2330	City of Scottsdale Standard Details	APPROVED BY: Scottsdale Standards & Specifications Committee	WATER SERVICE LINE CONNECTION	DETAIL NO. 2330



VIEW A - A



VIEW B - B

WATER SERVICES PARTS FOR ACP & DIP

Saddles (3/4" & 1" Services):

4" - Mueller or Approved equal

6" - Mueller or Approved equal

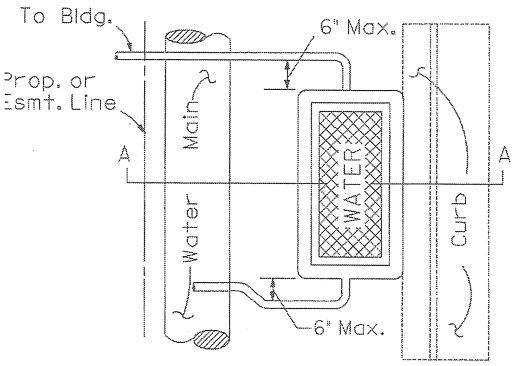
8" - Mueller or Approved equal

12" - Mueller or Approved equal

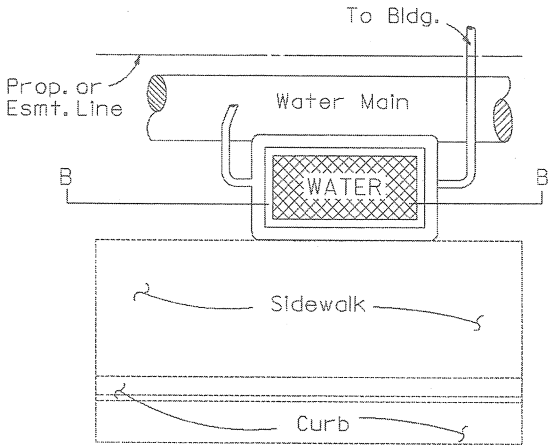
Corp. Stop (3/4" and 1" Services):

I.P. by Copper Flare - Mueller or Approved equal

Straight Meter Coupling With Meter Swivel Nut - Mueller or Approved equal



PLAN VIEW OF METER
ADJACENT TO CURB
TYPE "A"



PLAN VIEW OF METER
ADJACENT TO CURB
TYPE "B"

NOTES:

1. Copper service pipe shall meet A.S.T.M. spec. B-88 "Type K", All new services shall be installed with copper only.

2. All services for ⅝" and ¾" meters shall be ¾" "Type K" flared copper , all services for 1" meters shall be 1" "type K" flared copper.

3. All services for 1½" and 2" services shall be "Type K" rigid copper.

4. No compression fittings are allowed.

5. All water services shall terminate in the appropriate sized meter box with the appropriate size angle valve.

6. All ¾" through 2" water services must be at least two feet deep.

7. Only lead free silver solder shall be used.

8. New water service taps and/or water meters shall not be installed within a driveway entrance.

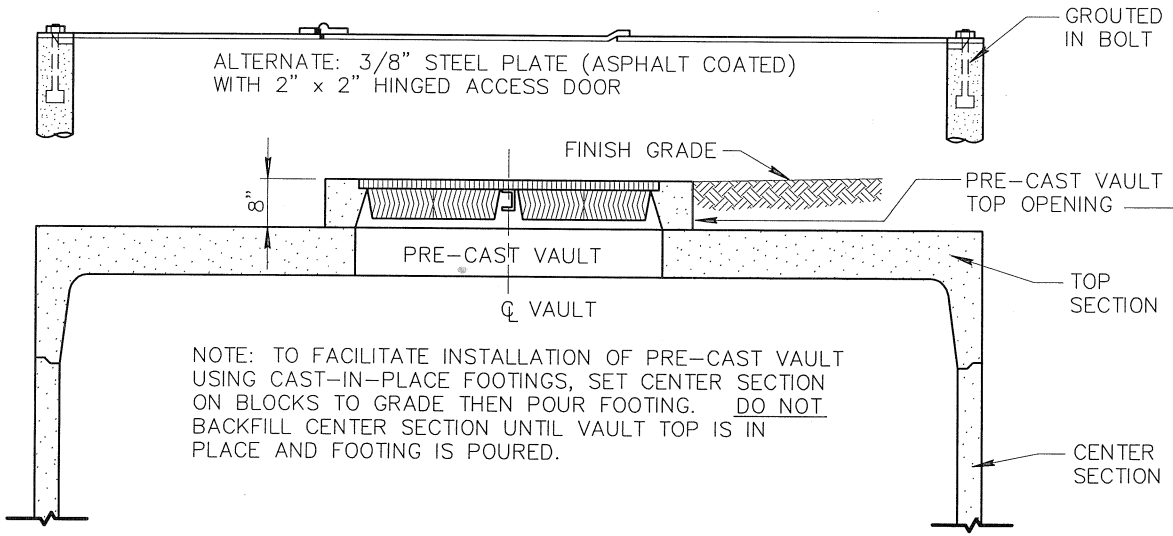
9. All meter boxes shall be concrete with metal lids and installed to be flush with the final grade.

APPROVED: _____ _____
DEPUTY PUBLIC WORKS MANAGER / CITY ENGINEER — DATE

CITY OF TEMPE
PUBLIC WORKS DEPARTMENT

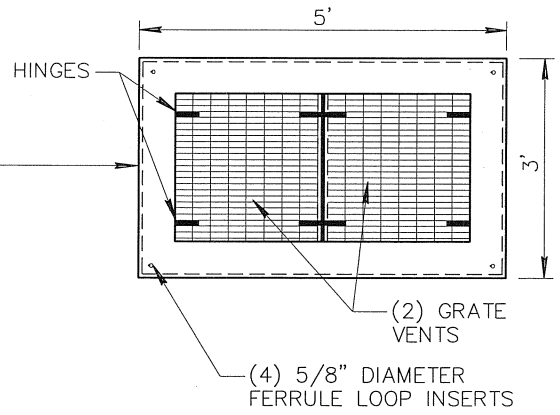
WATER METER & SERVICE INSTALLATION

DETAIL T-212
REVISED 2005

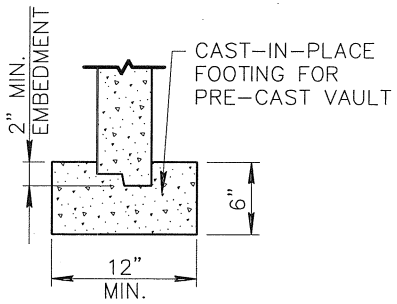


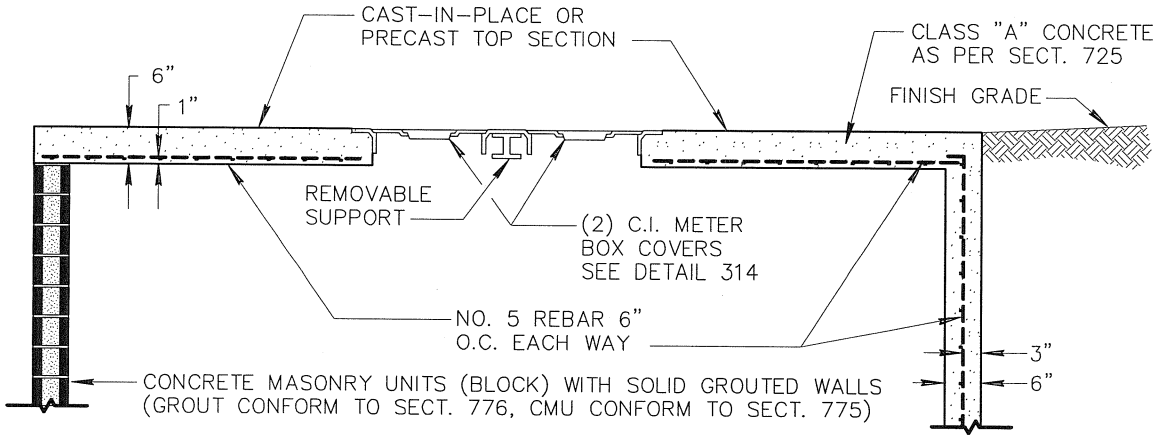
NOTE: TO FACILITATE INSTALLATION OF PRE-CAST VAULT USING CAST-IN-PLACE FOOTINGS, SET CENTER SECTION ON BLOCKS TO GRADE THEN POUR FOOTING. DO NOT BACKFILL CENTER SECTION UNTIL VAULT TOP IS IN PLACE AND FOOTING IS POURED.

PRE-CAST VAULT SECTION



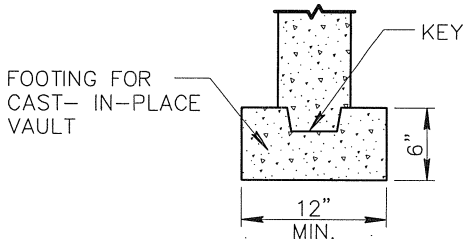
NOTE: PRECAST REINFORCED VAULT SECTIONS SHALL BE CONSTRUCTED IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS AND DETAILS AS APPROVED BY ENGINEER.



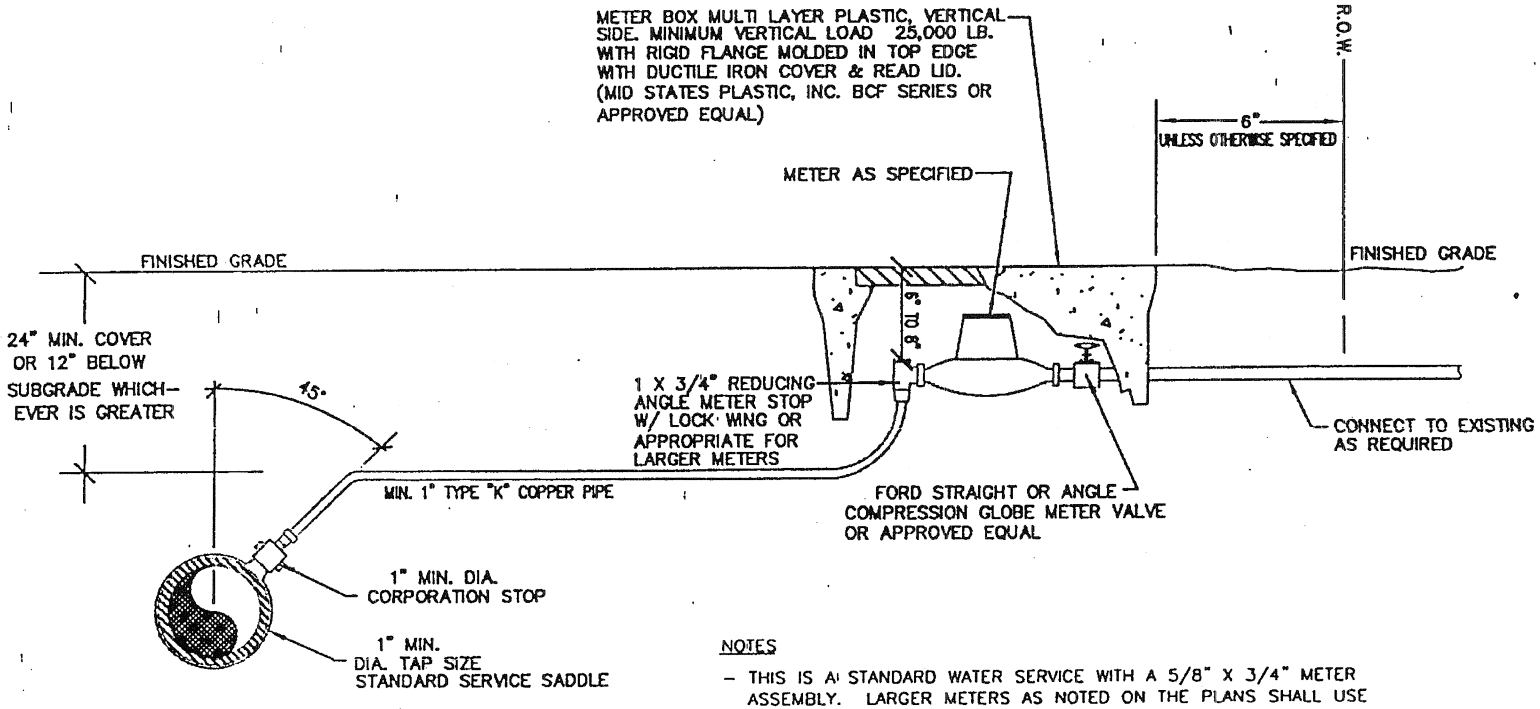


BLOCK MASONRY MAY BE USED IN LIEU OF CAST-IN-PLACE VAULT WALLS, NO. 4 REBAR IN EVERY OTHER CORE.

CAST-IN-PLACE VAULT SECTION



DETAIL NO.			REVISED	DETAIL NO.
321	MARICOPA ASSOCIATION of GOVERNMENTS STANDARD DETAIL ENGLISH	STANDARD WATER METER VAULT		321



NOTES

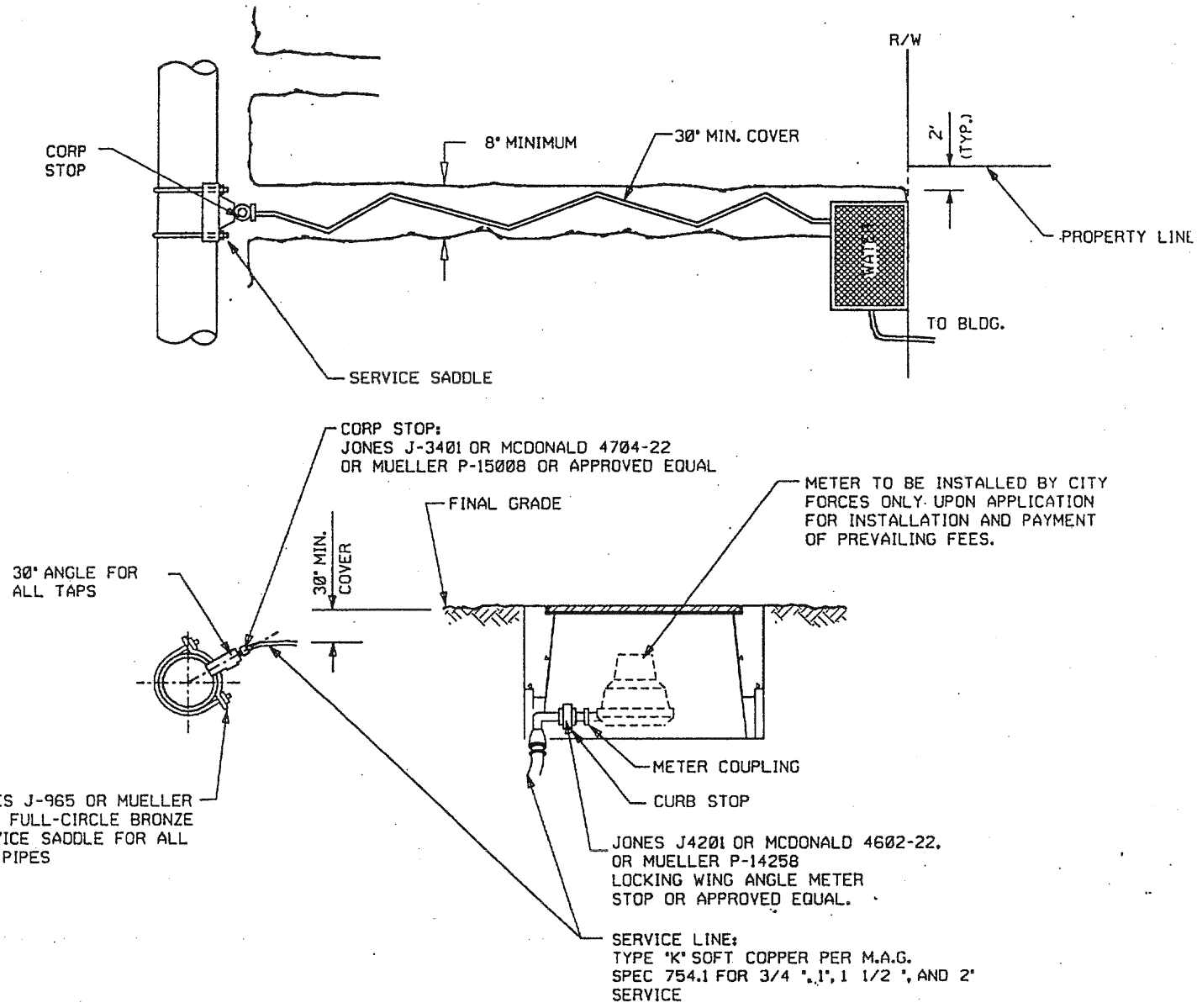
- THIS IS A STANDARD WATER SERVICE WITH A 5/8" X 3/4" METER ASSEMBLY. LARGER METERS AS NOTED ON THE PLANS SHALL USE PIPING AND FITTINGS WITH DIAMETERS EQUAL TO THE METER (MINIMUM SIZE COPPER PIPE ONE INCH).
- METER BOXES SHALL BE PLACED AT AN ELEVATION EQUAL TO THE FINISH GRADE INCLUDING LANDSCAPING EXCEPT IN ALLEYS. METER BOXES IN ALLEYS SHALL BE SET AT AN ELEVATION 2"-3" ABOVE FINISH GRADE.

CITY OF APACHE JUNCTION

3/4" TO 2" WATER METER SETTING DETAIL

JULY 30, 2001

DRAWING NO AJW-101



3/4 " OR 2"
WATER SERVICE CONNETIONS

N.T.S.

NOTES:

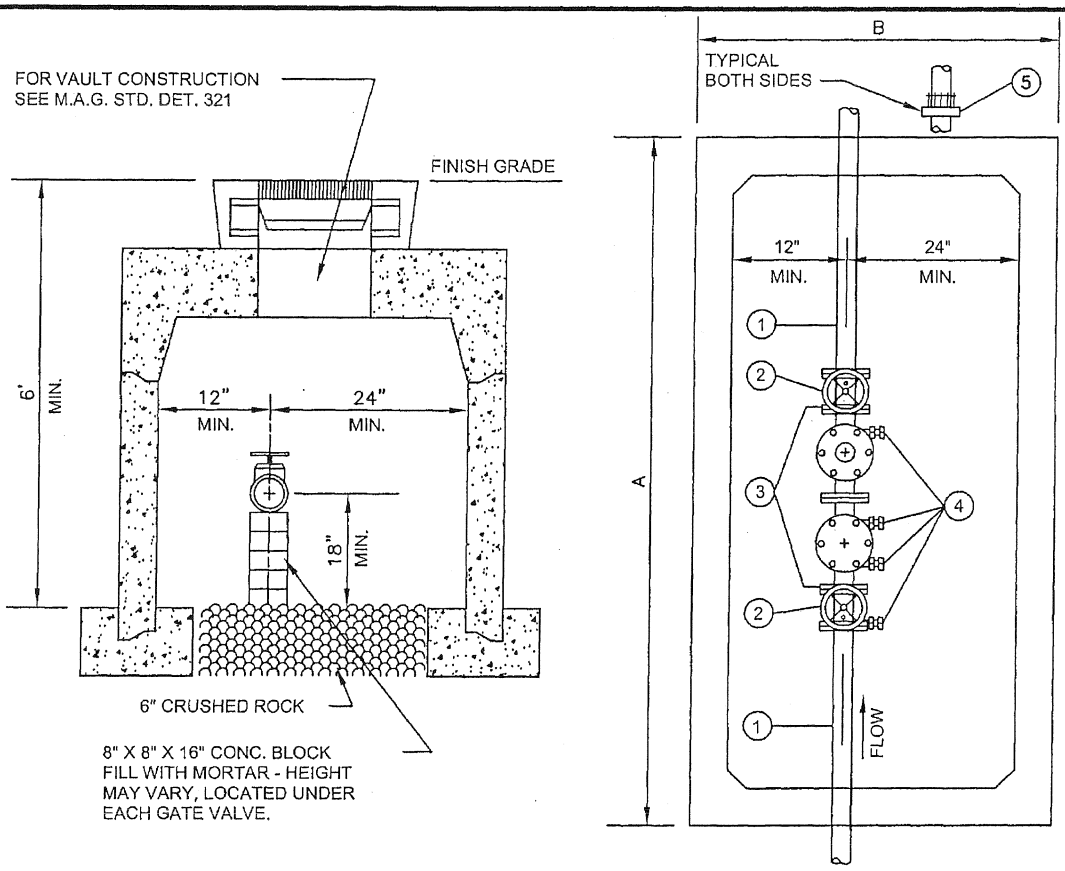
1. ALL TAPS MUST BE MADE USING A SERVICE SADDLE.
2. ALL SERVICE LINES SHALL HAVE THE PACK-JOINT COMPRESSION FITTINGS FOR CORP STOPS AND METER STOPS.
3. WHERE A CONTRACTOR IS INSTALLING NEW WATER LINES, HE SHALL ALSO INSTALL THE WATER SERVICE CONNECTION. THE INSTALLATION SHALL INCLUDE THE SERVICE SADDLE, CORP STOP, SERVICE PIPE, APPURTENANT FITTINGS, METER STOP, CONCRETE METER BOX AND BOX COVER, PER M.A.G. SPECIFICATIONS.
4. COPPER SERVICE LINES IN THE 3/4 ", 1", 1 1/2 ", AND 2" SIZES THAT CROSS STREETS WILL BE ONE CONTINUOUS PIECE.

STANDARD DETAIL G-680

CITY OF GLENDALE
ENGINEERING

GLENDALE

DOUBLE CHECK VALVE BACKFLOW PREVENTION ASSEMBLY VAULT INSTALLATION



NOTES:

VAULT TOP TO BE EQUIPPED WITH A 36" X 60" TORSION SPRING ASSISTED DOOR. UTILITY VAULT CO. CATALOG NO. 3660, OR APPROVED EQUAL.

VAULT DIMENSION TABLE

ASSEMBLY SIZE	3" & 4"	6"	8"	10"
(A) O.D.	7'-4"	8'-8"	10'-8"	12'-0"
(B) O.D.	5'-4"	6'-8"	7'-4"	7'-4"

LEGEND

1. PIPE SPOOL (FLANGED D.I.P.)
2. O.S. & Y. GATE VALVE (FIRE LINE CONNECTION). N.R.S. GATE VALVE (NON FIRE LINE CONNECTION).
3. APPROVED DOUBLE CHECK ASSEMBLY.
4. TEST COCKS (4 REQUIRED, SHALL BE FITTED WITH BRASS PLUGS).
5. FLANGED ADAPTER (WHEN REQUIRED), ONE ADAPTER MUST BE LOCATED INSIDE VAULT.

ACCEPTABLE PRE-CAST VAULTS

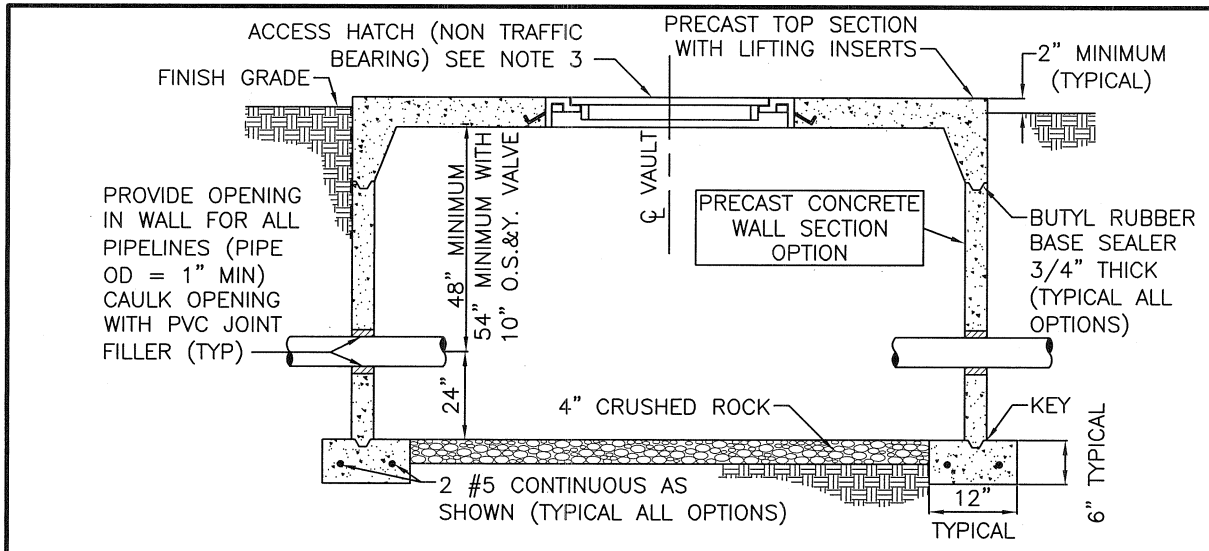
ASSEMBLY SIZE	UTILITY VAULT CO. CATALOG NUMBER. *
3"	4484
4"	5106
6"	612-5X

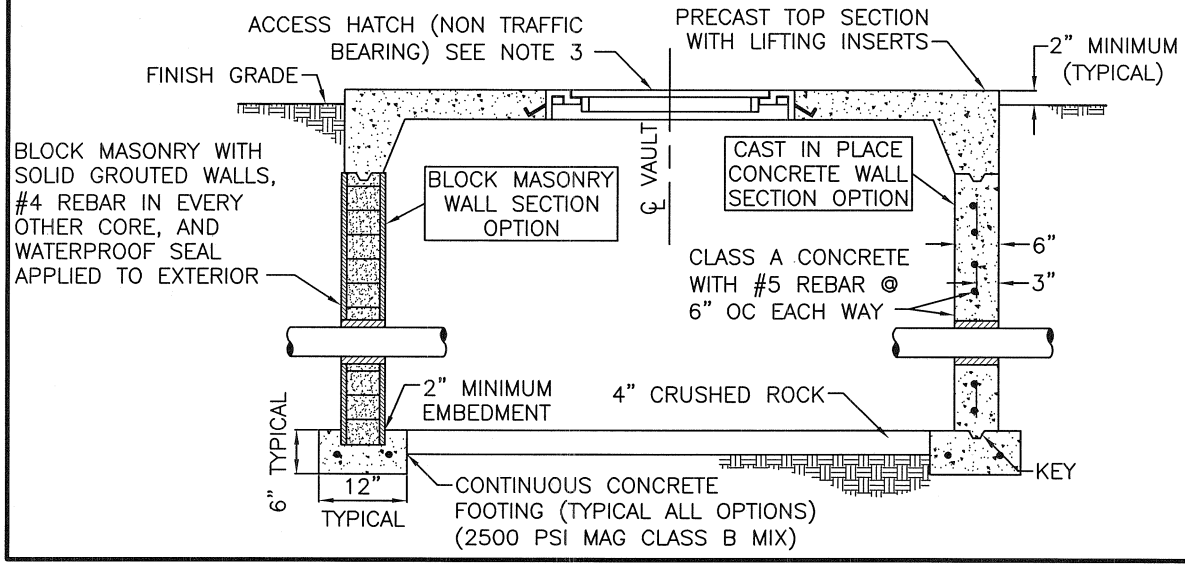
* OR APPROVED EQUAL

APPROVED BY: Harry J Broyles
CITY ENGINEER

6/28/02
DATE

REVISED : JUNE 2002





CONSTRUCTION NOTES

1. METER VAULT SHALL BE LOCATED IN AN AREA ADJACENT TO OR BE ACCESSIBLE FROM A PERMANENT VEHICULAR ACCESS ROAD (NOT IN A TRAFFIC AREA).

2. METER VAULT WALLS MAY BE CONSTRUCTED OF BLOCK MASONRY, CAST-IN-PLACE CONCRETE, OR PRECAST CONCRETE. TOP SECTION SHALL BE PRECAST CONCRETE WITH LIFTING INSERTS AND ACCESS HATCH INSTALLED BY PRECAST MANUFACTURER.

3. ACCESS HATCH SHALL BE 42" SQUARE TYPE "J" SPECIAL AS MANUFACTURED BY THE BILCO COMPANY OR 42" SQUARE AS MANUFACTURED BY UTILITY VAULT COMPANY. THE HATCH SHALL BE FLUSH MOUNTED, TORSION ASSISTED WITH REMOVABLE HANDLE OR PENTA HEAD BOLTS. THE HATCH SHALL BE DIAMOND PATTERN ALUMINUM. ALL SURFACES IN CONTACT WITH CONCRETE SHALL BE COATED WITH COAL TAR EPOXY.

4. SEE DETAIL M-30.2 FOR MINIMUM INTERIOR VAULT DIMENSIONS REQUIRED BY VARIOUS TYPES AND SIZES OF WATER METERS.

5. A 1.5 FOOT WIDE ACCESS LADDER IS REQUIRED IN ALL VAULTS GREATER THAN SIX (6) FOOT IN DEPTH. THE LADDER SHALL BE OF ALUMINUM CONSTRUCTION AND OSHA APPROVED. THE LADDER SHALL BE COATED WITH A RUST PROOF PAINT AFTER COMPLETION OF CONSTRUCTION.

STANDARD WATER METER VAULT

DETAIL NO. M-30.1

REV. 01/01/02

METER TYPE AND APPLICATION	METER SIZE	MINIMUM INSIDE VAULT DIMENSIONS*		
		WIDTH	LENGTH	HEIGHT
COMPOUND WATER METER WITHOUT ON-SITE FIRE HYDRANTS (M-28.1)	3"	6'-0"	6'-0"	6'-0"
	4"	6'-0"	6'-0"	6'-0"
	6"	6'-0"	6'-0"	6'-0"

METER TYPE AND APPLICATION	METER SIZE	MINIMUM INSIDE VAULT DIMENSIONS*		
		WIDTH	LENGTH	HEIGHT
WATER METER WITH ON-SITE FIRE HYDRANTS WITH LARGE DIAMETER BYPASS (M-27.1)	4"	8'-0"	6'-3"	6'-0"
	6"	8'-0"	7'-6"	6'-0"
	8"	8'-0"	8'-6"	6'-0"
	10"	8'-9"	10'-0"	6'-6"
WATER METER WITH ON-SITE FIRE HYDRANTS WITHOUT LARGE DIAMETER BYPASS† (M-27.1)	4"	6'-0"	6'-3"	6'-0"
	6"	6'-0"	7'-6"	6'-0"
	8"	6'-9"	8'-6"	6'-0"
	10"	7'-3"	10'-0"	6'-6"
WATER METER WITHOUT ON-SITE FIRE HYDRANTS WITHOUT LARGE DIAMETER BYPASS (M-28.1)	4"	6'-0"	6'-3"	6'-0"
	6"	6'-0"	7'-6"	6'-0"
	8"	6'-9"	8'-6"	6'-0"
	10"	7'-3"	10'-0"	6'-6"

† LARGE DIAMETER BYPASS NOT REQUIRED FOR DOMESTIC SERVICE ONLY OR FOR FIRE SERVICE WITH TWO (2) OR MORE LOOPED FIRE SERVICE METER INSTALLATIONS.

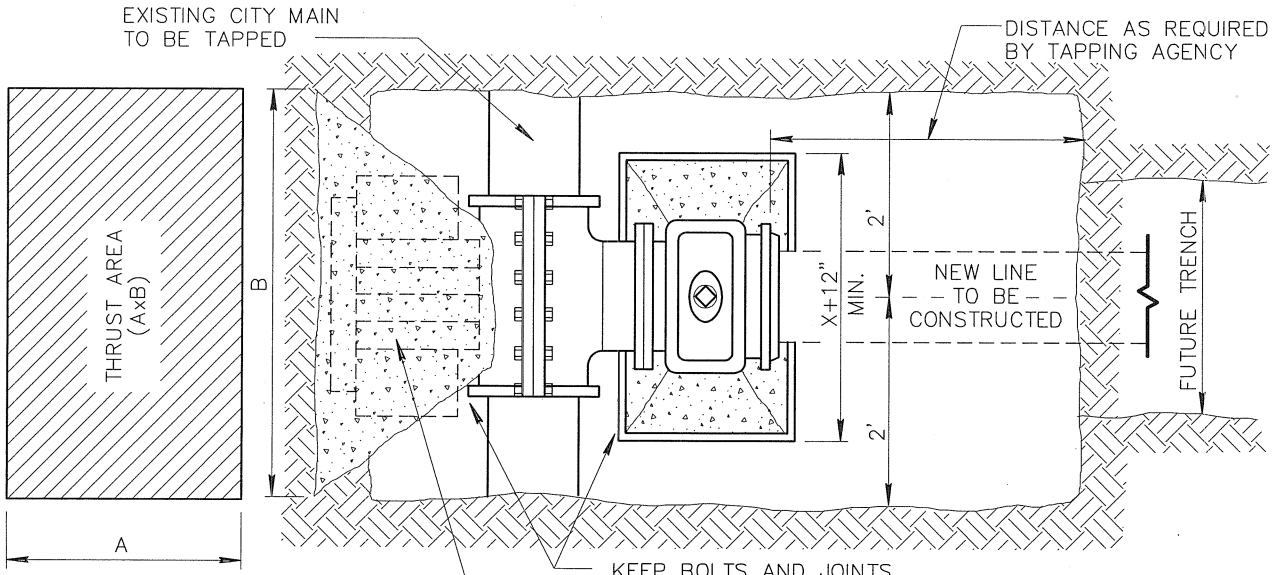
* DIMENSIONS SHOWN REPRESENT ACCEPTABLE MINIMUMS. CONTRACTOR SHALL VERIFY THAT SPECIFIED MINIMUM CLEAR DISTANCES BETWEEN PIPING AND VAULT ARE PROVIDED BASED ON ACTUAL EQUIPMENT BEING FURNISHED. (MINIMUM WIDTH OF VAULTS TO BE 6'-0".)

NOTE: METER VAULTS SHALL NOT BE INSTALLED IN DRIVEWAYS OR IN A LOCATION INACCESSIBLE TO MAINTENANCE VEHICLES. (SEE NOTE 1 ON DETAIL M-30.1.)
ALL METERS SHALL BE PURCHASED FROM THE CITY OF MESA.

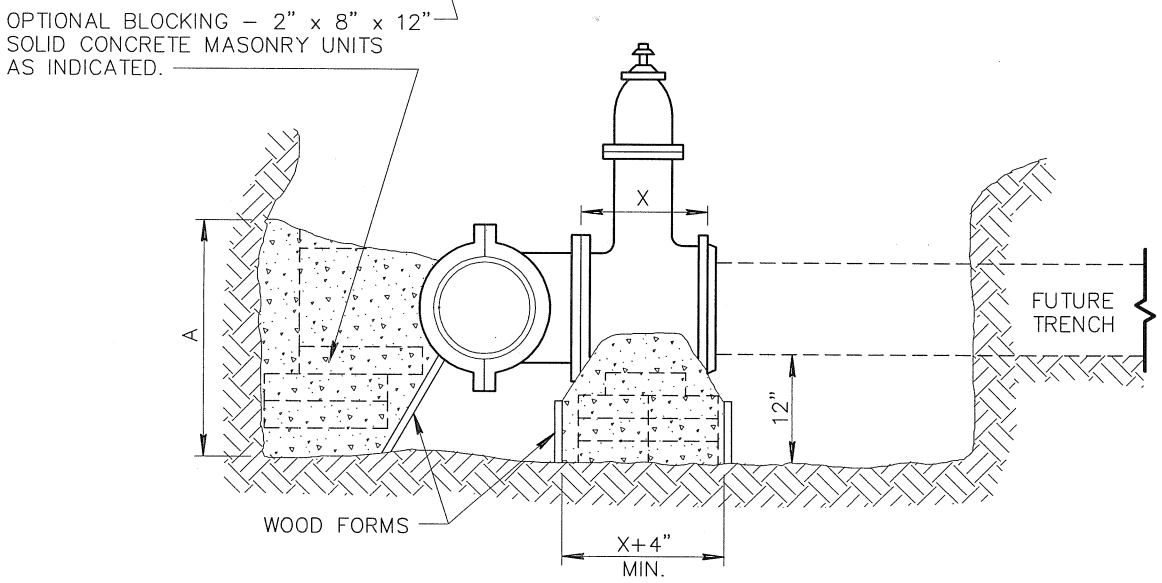
WATER METER VAULT DIMENSIONS

DETAIL NO. M-30.2

REV. 01/01/02



PLAN



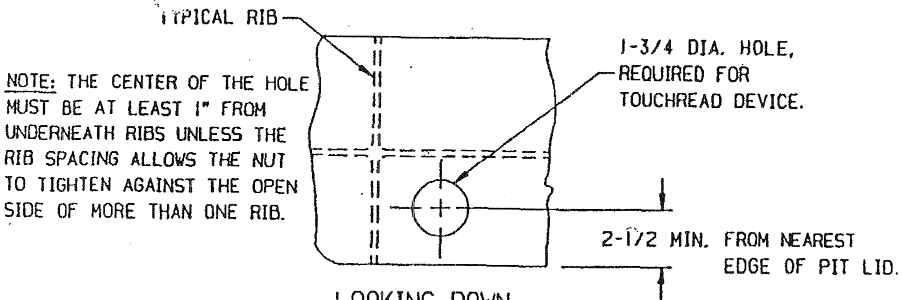
ELEVATION

NOTES:

1. TAPPING SLEEVE TO BE PLACED A MINIMUM OF 18" FROM ANY BELL COUPLING, VALVE, FITTING OR OTHER OBSTRUCTION
2. CONTRACTOR SHALL EXCAVATE AS SHOWN AND SHALL SET TAPPING SLEEVE AND VALVE AND TIGHTEN ALL BOLTS PRIOR TO THE PRESSURE TEST.
3. ALL TAPPING SLEEVES AND VALVES MUST BE PRESSURE TESTED PRIOR TO BLOCKING OR TAPPING. THE TEST MUST BE WITNESSED AND APPROVED BY THE INSPECTOR.
4. BLOCKS ARE TO EXTEND TO UNDISTURBED GROUND AND BE INSTALLED BEFORE THE TAP IS MADE. ALL FLANGE BOLTS SHALL BE FREE AND CLEAR OF CONCRETE.
5. CONCRETE THRUST BLOCKS SHALL BE CLASS 'B' PER SECT. 725. NORMALLY, CURE TIME FOR CONCRETE IS 24 HOURS BEFORE BACKFILLING.
6. TAPS SHALL BE MADE BY CITY CREWS AT PREVAILING RATES OR BY APPROVED CONTRACTORS WHEN ALLOWED BY AGENCY.
7. THIS DETAIL COVERS TAPPING SLEEVES 4" THROUGH 16" IN SIZE ON DUCTILE IRON, CAST IRON AND ASBESTOS CEMENT PIPE. ANY OTHER SIZE OR TYPE OF PIPE WILL REQUIRE A SEPARATE SUBMITTAL AND APPROVAL BY THE ENGINEER.

SIZE OF PIPE BEING CONNECTED	MINIMUM THRUST AREA REQUIRED EQUALS (AxB) (SQUARE FEET)
4" AND LESS	3
6"	4
8"	6
10"	9
12"	13
16"	23

DETAIL NO.			REVISED	DETAIL NO.
340	MARICOPA ASSOCIATION of GOVERNMENTS STANDARD DETAIL ENGLISH	INSTALLING TAPPING SLEEVES AND VALVES	01-03-2002	340



LOOKING DOWN
ON TYPICAL METER PIT LID

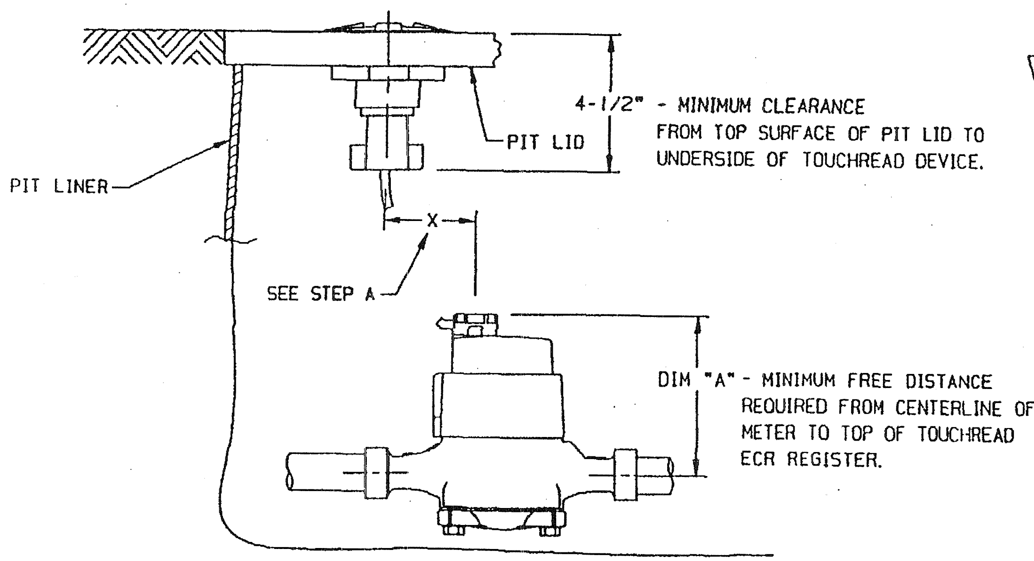
INSTALLATION INSTRUCTIONS

STEP A : LOCATING AND DRILLING HOLE -
DRILL 1-3/4" DIA. HOLE THROUGH PIT LID - CLEARING UNDERSIDE RIBBING.

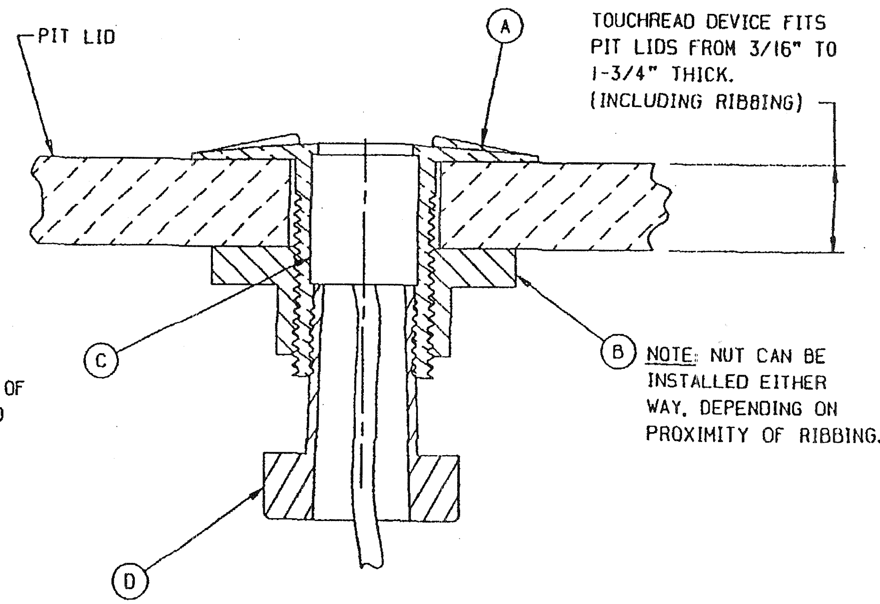
1. WHEN LOCATING THE HOLE, DETERMINE THE REQUIRED VERTICAL CLEARANCE TO AVOID INTERFERENCE OF THE TOUCHREAD DEVICE AND THE METER (DIM X).
2. THE HOLE CENTER MUST BE 2-1/2" MINIMUM FROM THE OUTSIDE EDGE OF THE PIT LID FOR CLEARANCE OF THE DEVICE'S TOP FLANGE. SEE THE NOTE ON RIB CLEARANCE.

STEP B : INSTALLING DEVICE -

1. INSERT SENSOR HOUSING (A) THROUGH PIT LID HOLE (FROM ABOVE) AND TIGHTEN SECURELY IN PLACE WITH PLASTIC NUT (B).
2. INSERT SENSOR ASSEMBLY (C)-CONNECTED TO METER'S REGISTER- INTO HOUSING AND SECURE IN PLACE WITH SCREW PLUG (D).
3. EXCESS WIRE SHOULD BE COILED LOOSELY (NOT TIED) IN METER PIT, ALLOWING SLACK FOR PIT LID REMOVAL.



SIDE VIEW OF TYPICAL METER
PIT INSTALLATION



INSTALLATION DETAILS OF
TOUCHREAD DEVICE

SR METERS

METER SIZE	DIM"A"
5/8"	4-1/2
3/4"	5
1"	5-1/2
1-1/2"	6
2"	7

SR II METERS

METER SIZE	DIM"A"
5/8"	5-1/2
3/4"	5-1/2
1"	6-1/2

LT	CHANGE NOTICE NO.	DATE
1	REVISION	9-20-89

SENSUS TECHNOLOGIES, INC — A BTR Company

TOUCH READ SYSTEM
PIT LID DEVICE INSTALLATION DIMENSIONS & INSTRUCTIONS

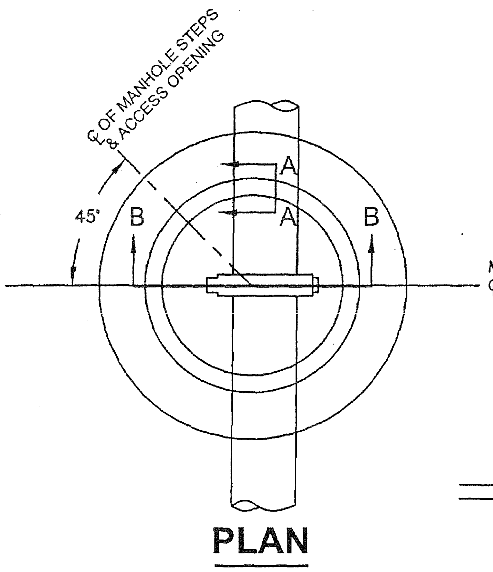
SCALE	NONE	DATE	SHEET 1 OF 1
DR. BY	R.Williams	4-1-86	
CH. BY			
AP. BY			UM-8043-D

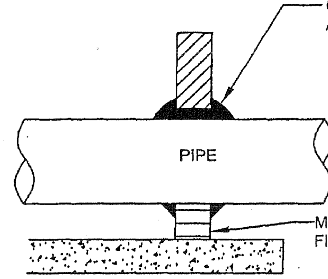
STANDARD DETAIL G-605

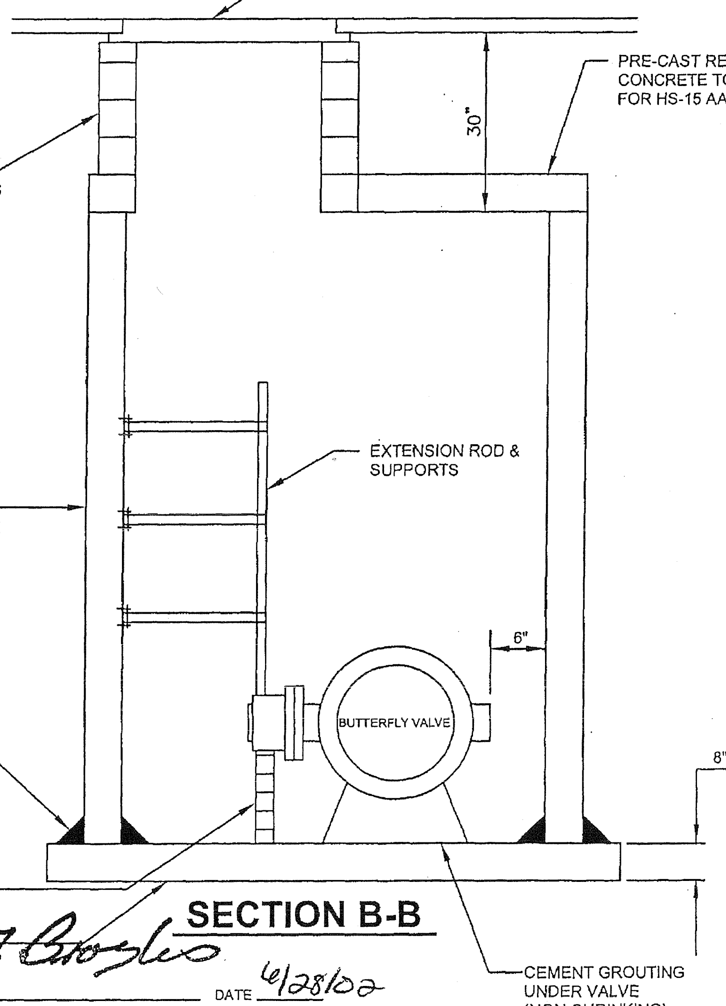
CITY OF GLENDALE
ENGINEERING

GLENDALE

MANHOLE FOR BUTTERFLY VALVES



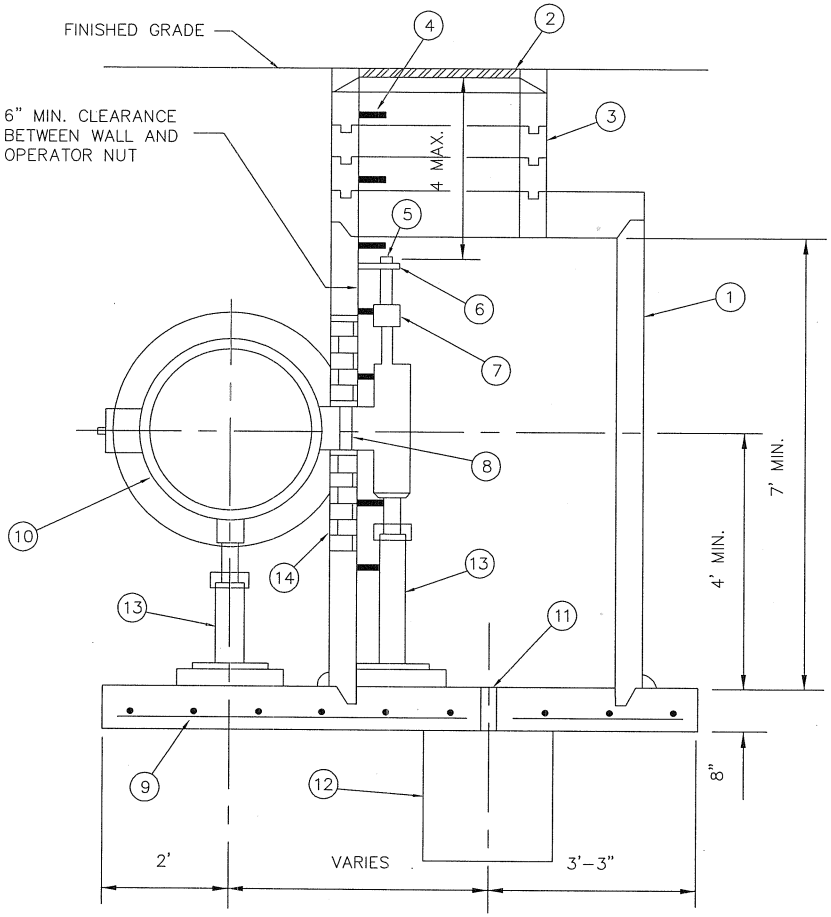




APPROVED BY: ______ CITY ENGINEER DATE 6/28/02

REVISED : JUNE 2002

PREVIOUS :

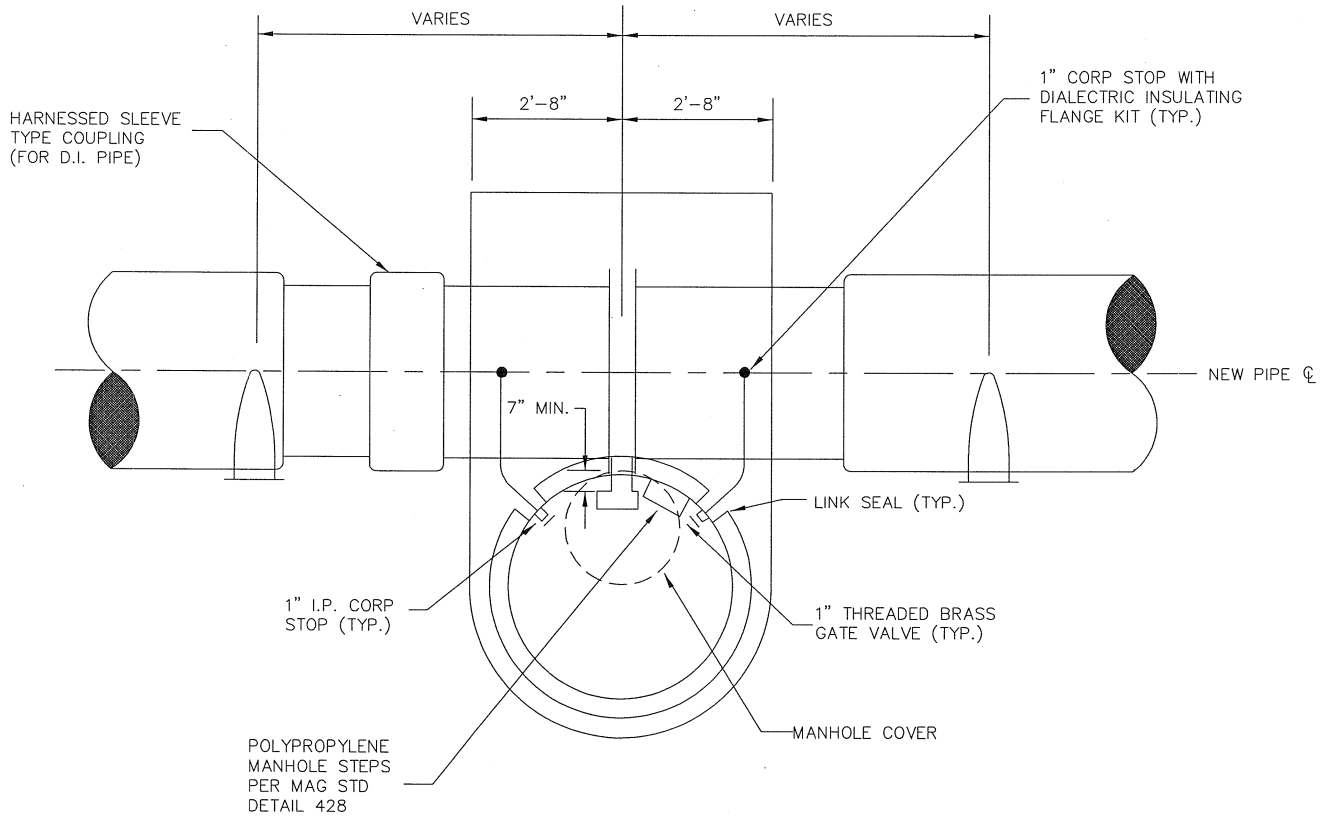


SECTION

LEGEND

1. 48" I.D. MANHOLE SHAFT PER MAG STD. DETAIL 420, TYPE "B" TOP
2. 30" MANHOLE FRAME & COVER PER MAG STD. DETAIL 424.
3. GROUTED ADJUSTING RINGS
4. POLYPROYLENE MANHOLE STEPS PER MAG STD. DETAIL 428, 12" SPACING TYPICAL
5. OPERATOR NUT
6. WALL BRACKET
7. PACKING GLAND
8. 6" EXTENSION
9. #4 REBAR 12" ON CENTER EACH WAY 2" CLEAR TYPICAL
10. BUTTERFLY VALVE
11. 3" DIAMETER DRAIN
12. 8 CU. FT. GRAVEL SUMP
13. ADJUSTABLE PIPE SADDLE SUPPORT
14. RECTANGULAR CUT-OUT IN MANHOLE SHAFT FILL SPACE BETWEEN SHAFT AND PIPE WITH 1" SHEET FOAM, BRICK AND MORTAR

DETAIL NO. G-3307-1	CITY OF GOODYEAR STANDARD DETAIL	APPROVED BY: Goodyear Standards and Policies Committee 7/97	BUTTERFLY VALVE OPERATOR MANHOLE	DETAIL NO. G-3307-1



PLAN

DETAIL NO. G-3307-2	CITY OF GOODYEAR STANDARD DETAIL	APPROVED BY: Goodyear Standards and Policies Committee 7/97	BUTTERFLY VALVE OPERATOR MANHOLE	DETAIL NO. G-3307-2

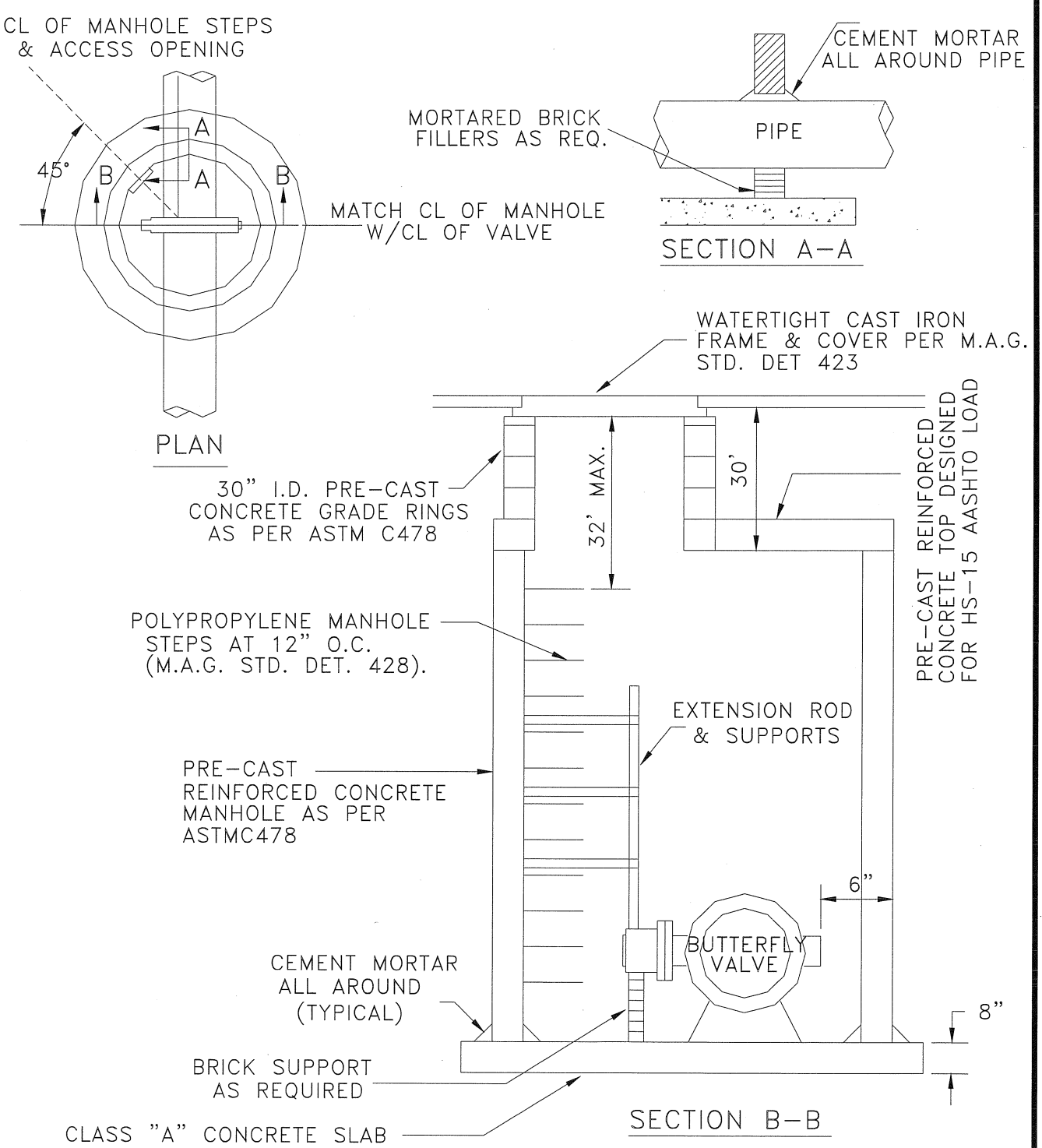
PEORIA DETAIL 346

MANHOLE FOR BUTTERFLY VALVES

APPROVALS:

CITY ENGINEER DATE

UTILITIES DIRECTOR DATE



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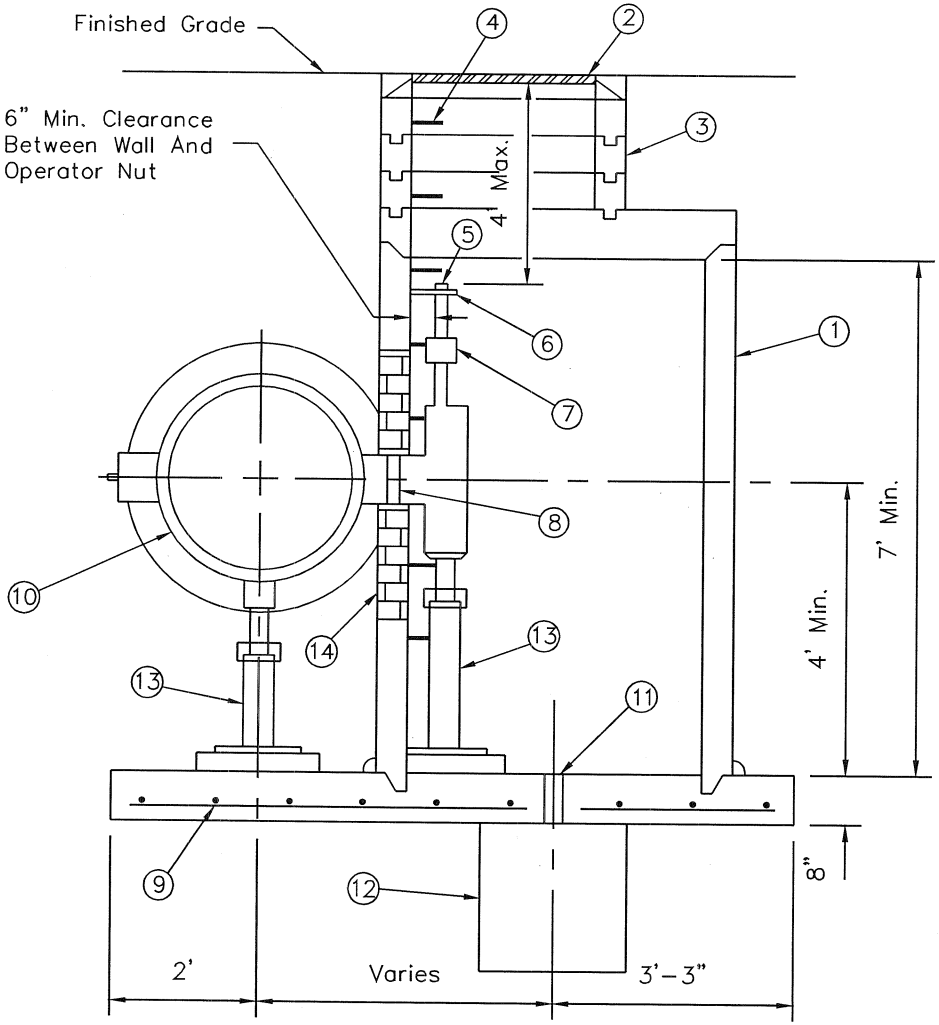
07/14/98



SECTION

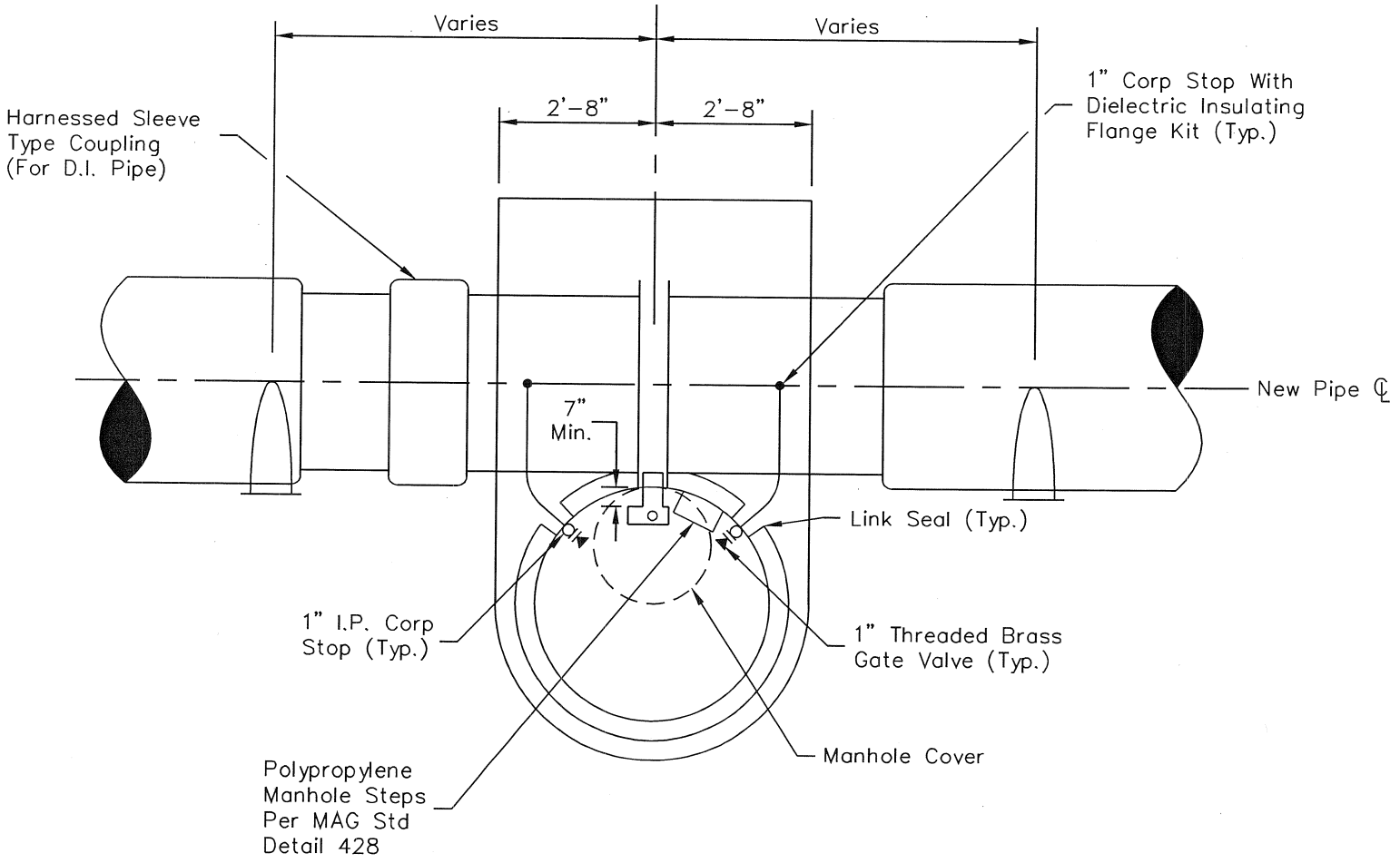
LEGEND

1. 48" I.D. Manhole Shaft Per MAG Std. Detail 420, Type "B" Top
2. 30" Manhole Frame & Cover Per MAG Std. Detail 424
3. Grouted Adjusting Rings
4. Polypropylene Manhole Steps Per MAG Std. Detail 428, 12" Spacing Typical
5. Operator Nut
6. Wall Bracket
7. Packing Gland
8. 6" Extension
9. #4 Rebar 12" On Center Each Way 2" Clear Typical
10. Butterfly Valve
11. 3" Diameter Drain
12. 8 Cu. Ft. Gravel Sump
13. Adjustable Pipe Saddle Support
14. Rectangular Cut-Out In Manhole Shaft, Fill Space Between Shaft And Pipe With 1" Sheet Foam, Brick And Mortar

REVISED 1/4/93

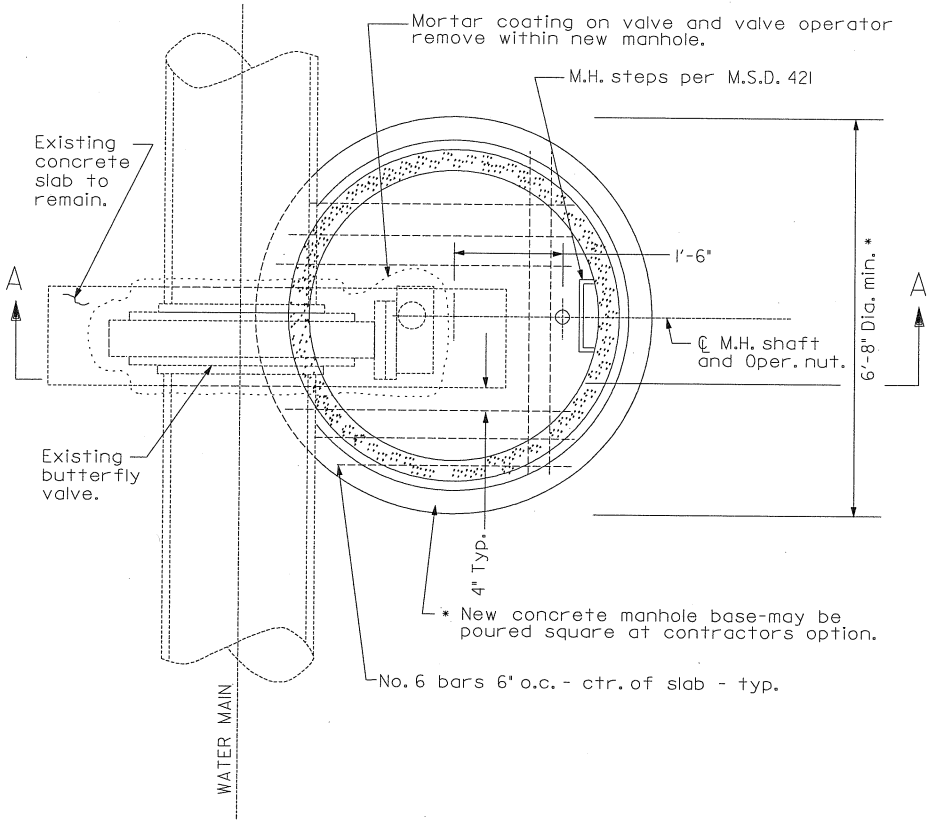
DETAIL NO. 2305-1	City of Scottsdale Standard Details	APPROVED BY: Scottsdale Standards & Specifications Committee	BUTTERFLY VALVE OPERATOR MANHOLE	DETAIL NO. 2305-1

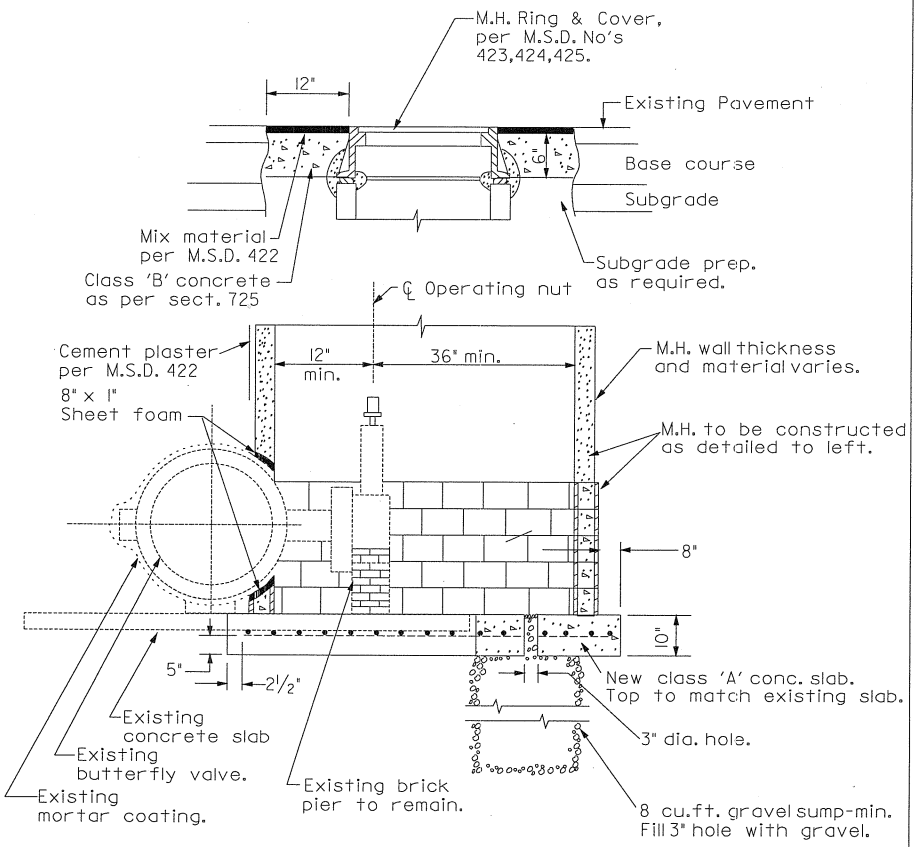
REVISED 1/14/93



PLAN

DETAIL NO. 2305-2	City of Scottsdale Standard Details	APPROVED BY: Scottsdale Standards & Specifications Committee	BUTTERFLY VALVE OPERATOR MANHOLE	DETAIL NO. 2305-2





SECTION A - A

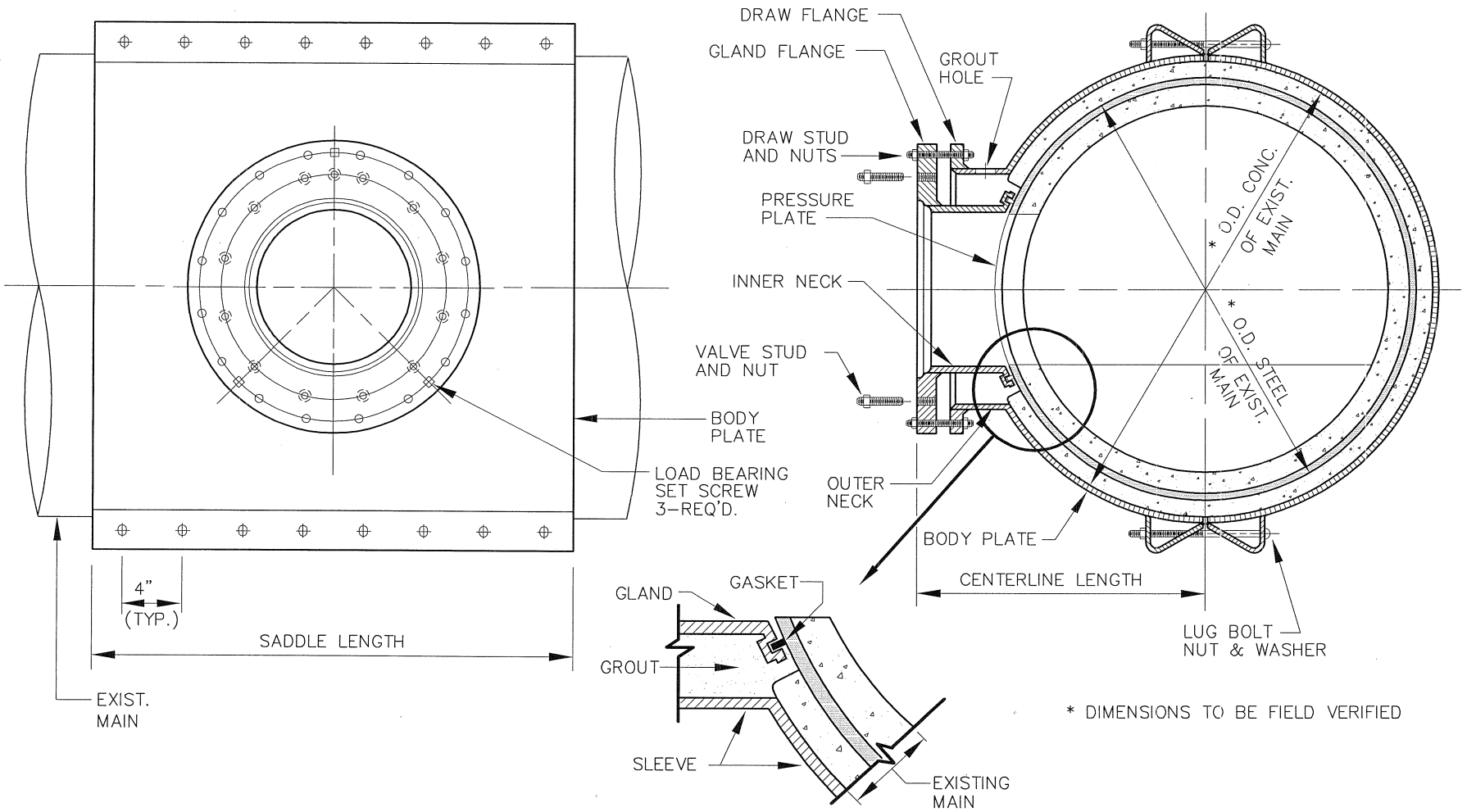
NOTES

- EXISTING 6" AND 8" BLOWOFF PIPING TO BE REMOVED AND REPLACED AS REQUIRED TO CLEAR MANHOLE SHAFT A MIN. OF 2'-0". NEW 6" AND 8" WATERLINES TO BE M.J.D.I.P. WITH APPROVED JOINT RESTRAINTS.

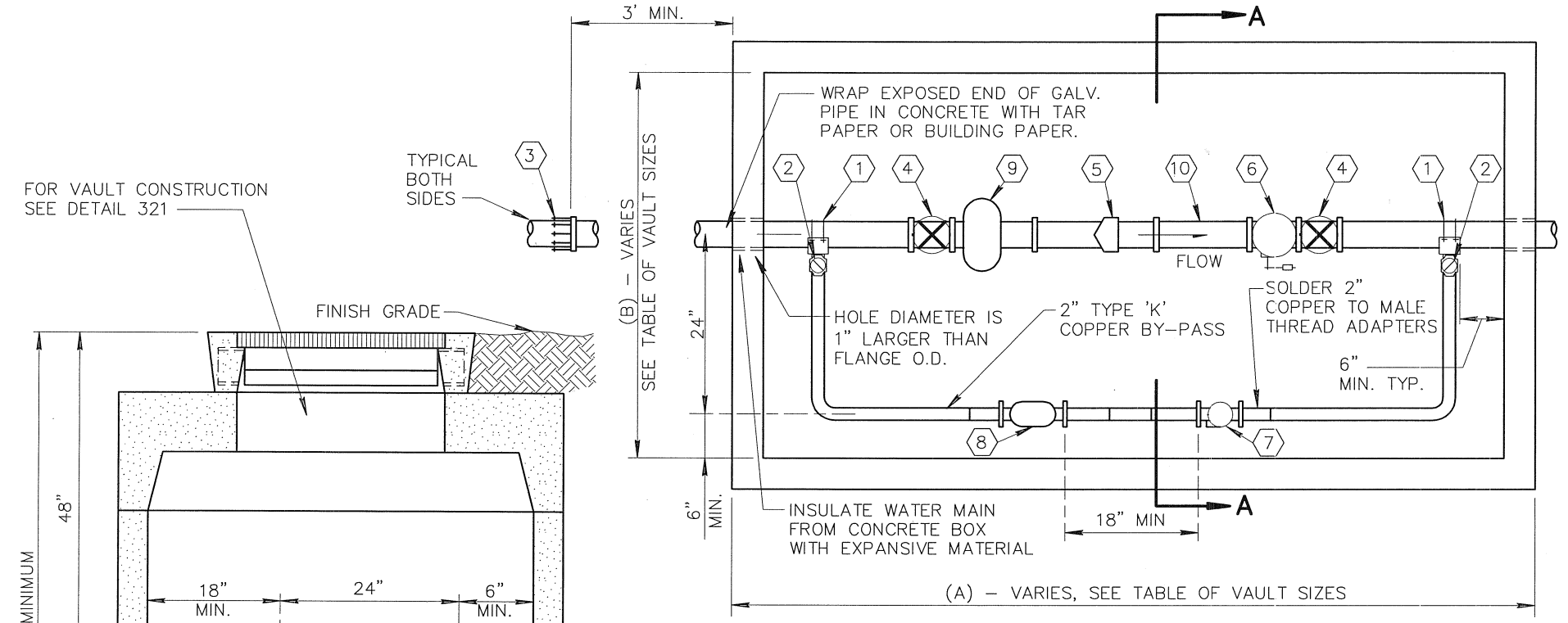
ORIGINAL SIGNATURE ON FILE AT THE CITY OF TEMPE

APPROVED: _____ CITY ENGINEER _____ DATE

CITY OF TEMPE PUBLIC WORKS DEPARTMENT	VALVE VAULT INSTALLATION FOR EXISTING BUTTERFLY VALVE	DETAIL T-216 REVISED 1998



DETAIL NO.			REVISED	DETAIL NO.
342	MARICOPA ASSOCIATION of GOVERNMENTS STANDARD DETAIL ENGLISH	CONCRETE PRESSURE PIPE TAPPING SLEEVE		342

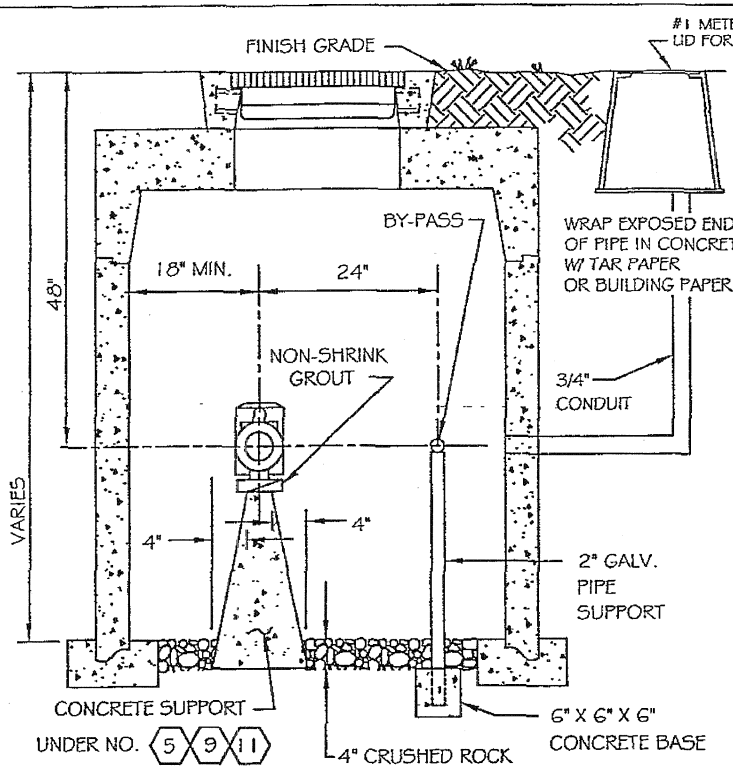


SECTION A–A

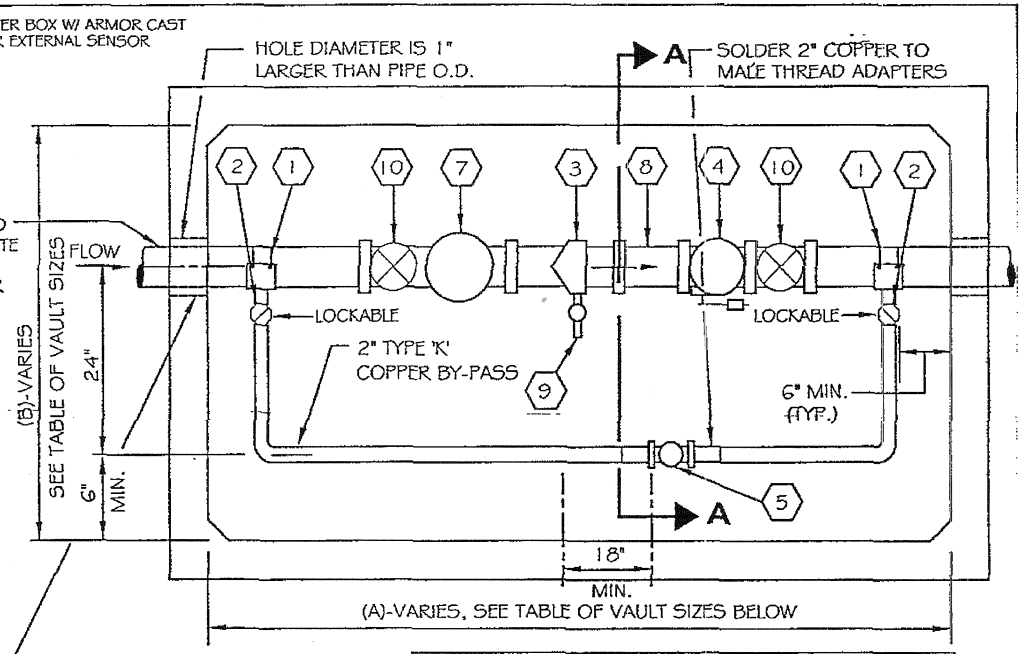
VAULT DIMENSION DETAILS			
A.C.P. SIZE	3"	4"	6"
(A)	8'–4"	10'–6"	12'–0"
(B)	4'–4"	5'–0"	5'–0"

NOTE: METER VAULTS MAY BE EITHER CONCRETE MASONRY UNITS OR CAST–IN–PLACE OR PRE–CAST CONCRETE, SEE DETAIL 321 FOR VAULT CONSTRUCTION.

DETAIL NO.			REVISED	DETAIL NO.
345-1	MARICOPA ASSOCIATION of GOVERNMENTS STANDARD DETAIL ENGLISH	3", 4", 6" WATER METER		345-1



SECTION A-A



VAULT DIMENSION TABLE			
PIPE SIZE	3"	4"	6"
(A)	8'-4"	10'-6"	12'
(B)	4'-4"	5'	5'

NOTES:

1. METER VAULTS MAY BE EITHER CAST-IN-PLACE OR PRE-CAST CONCRETE. SEE MAG STANDARD DETAIL 321 FOR VAULT CONSTRUCTION.
2. FOR LARGER THAN 6" METERS SPECIAL VAULT DESIGN IS REQUIRED.
3. STAINLESS BOLTS AND NUTS REQUIRED FOR ENTIRE ASSEMBLY.
4. MAIN LINE METERS SHALL BE EQUIPPED WITH AN "ITRON ERT UNIT" LOCATED SEPARATELY IN A #1 BOX W/ AMORCAST LID FOR EACH METER AND TO BE CONNECTED BY 3/4" CONDUIT.
5. CURB STOP TO NORMALLY BE CLOSED.

LEGEND:

1. DOUBLE STRAP ALL BRONZE SERVICE SADDLES.
2. 2" CURB STOP WITH BRONZE OR BRASS BODY, LOCKABLE.
3. THREE INCH AND GREATER COMPOUND METERS SHALL BE ONE OF THE FOLLOWING AND INSTALLED BY CONTRACTOR: A. BADGER WITH RTR REGISTER/ITRON ERT SIGNAL UNIT, B. SENSUS WITH ECRW.P REGISTER/ITRON ERT SIGNAL UNIT, C. SCHLUMBERGER WITH PROREAD REGISTER/ITRON ERT SIGNAL UNIT.
4. FLANGED SWING CHECK VALVE WITH EXTERNAL LEVER AND WEIGHT.
5. 2" BRONZE CHECK VALVE. (LOW ZINC)
6. NOT USED
7. 6" OR LARGER STRAINER, U.L. APPROVED. (NO CIP)
8. FLANGED SPOOL. (3 PIPE DIAMETERS IN LENGTH)
9. 2" BALL VALVE WITH BRONZE OR BRASS BODY, STAINLESS STEEL BALL AND TEFLON SEATS.
10. O.S. & Y. GATE VALVE, FLANGED WITH HAND WHEEL OPEN LEFT, AND RISING STEM.

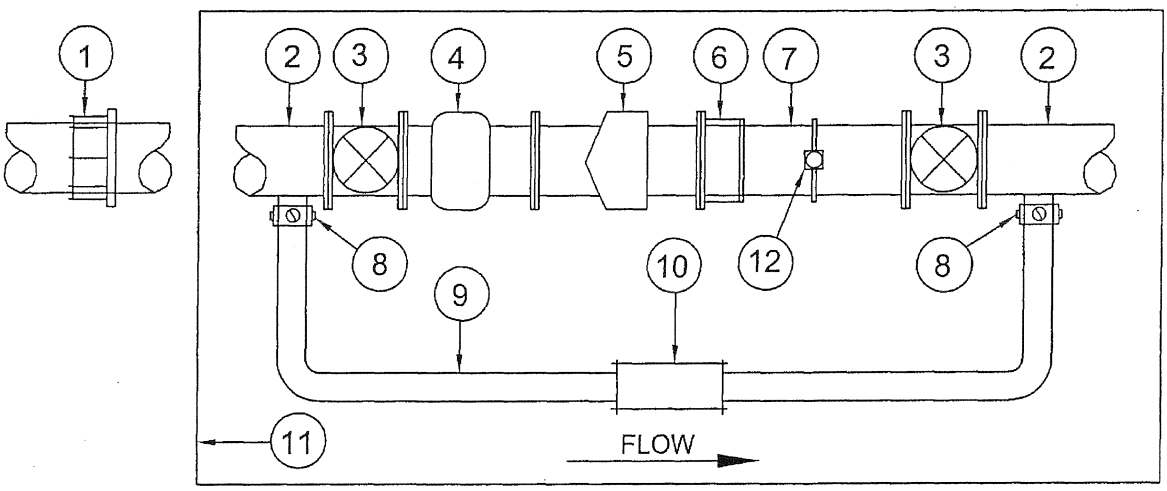
C-316 REPLACES 100A & B	CITY OF CHANDLER STANDARD DETAIL	3" TO 6" WATER METER	APPROVED: CITY ENGINEER DATE: January 11, 2007	DETAIL NO. C-316 NTS

STANDARD DETAIL G-674

CITY OF GLENDALE
ENGINEERING

GLENDALE

TURBO METER ASSEMBLY
3, 4, OR 6 INCH



LEGEND

1. ADAPTER, FLANGED TO MECHANICAL JOINT FOR A.C.P. A 4" X 3" REDUCER IS REQUIRED FOR A 3" METER. REDUCER SHALL BE BETWEEN 4" SUPPLY PIPE AND 3" GATE VALVE.
2. D.I.P. SPOOL, 12" FLANGED WITH 2" TAP.
3. R.S. GATE VALVE, FLANGED, WITH HAND WHEEL, LEFT TO OPEN.
4. STRAINER (3", 4", 6") AVAILABLE FROM METER MANUFACTURER.
5. TURBO METER, TO BE SUPPLIED BY CITY FORCES.
6. FLANGED COUPLING ADAPTER, TO CONNECT PLAIN END SPOOL TO FLANGED METER.
7. D.I.P. SPOOL, 18" PLAIN END TO FLANGED (3", 4", 6").
8. CORPORATION STOP, 2" (BALL TYPE).
9. 2" HARD (K) COPPER.
10. 2" FLEX COUPLING.
11. PRE-CAST VAULT (UTILITY VAULT CO. OR APPROVED EQUAL).
12. 2" DOUBLE STRAP ALL BRONZE SERVICE SADDLE, WITH CORP-ORATION STOP. (BALL TYPE).

NOTE:
SUPPORTS UNDER ALL VALVES AND METER PER MAG STD. DET. 345-1.
VAULT TOP TO BE EQUIPPED WITH A 36"X 60" TORSION SPRING ASSISTED DOOR. UTILITY VAULT CO. CATALOG NO. 3660, OR APPROVED EQUAL.

APPROVED BY: Larry J. Broyles
CITY ENGINEER

4/28/02
DATE

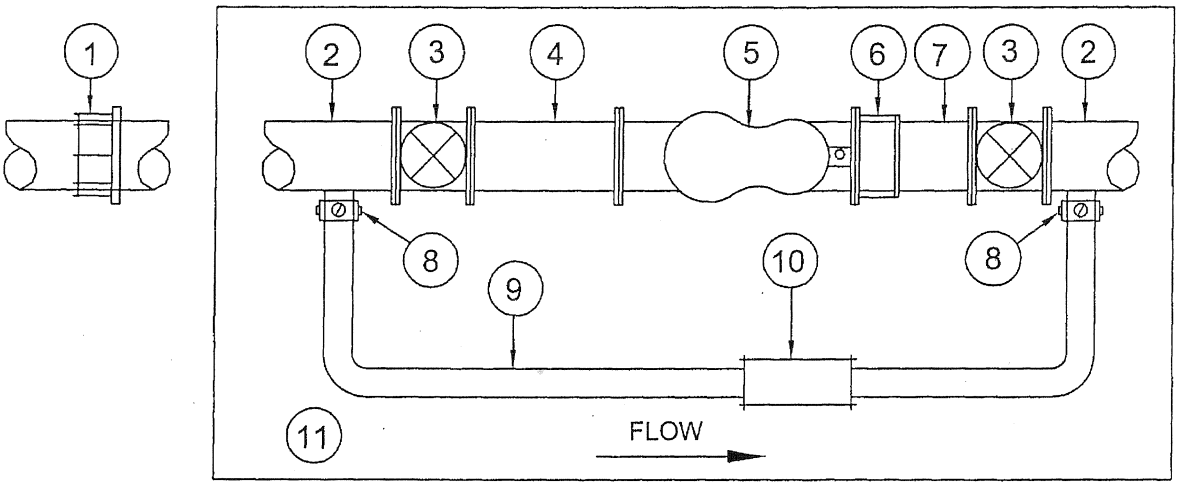
REVISED : JUNE 2002
PREVIOUS :

STANDARD DETAIL G-676

CITY OF GLENDALE
ENGINEERING

GLENDALE

COMPOUND METER ASSEMBLY
3, 4, OR 6 INCH



LEGEND

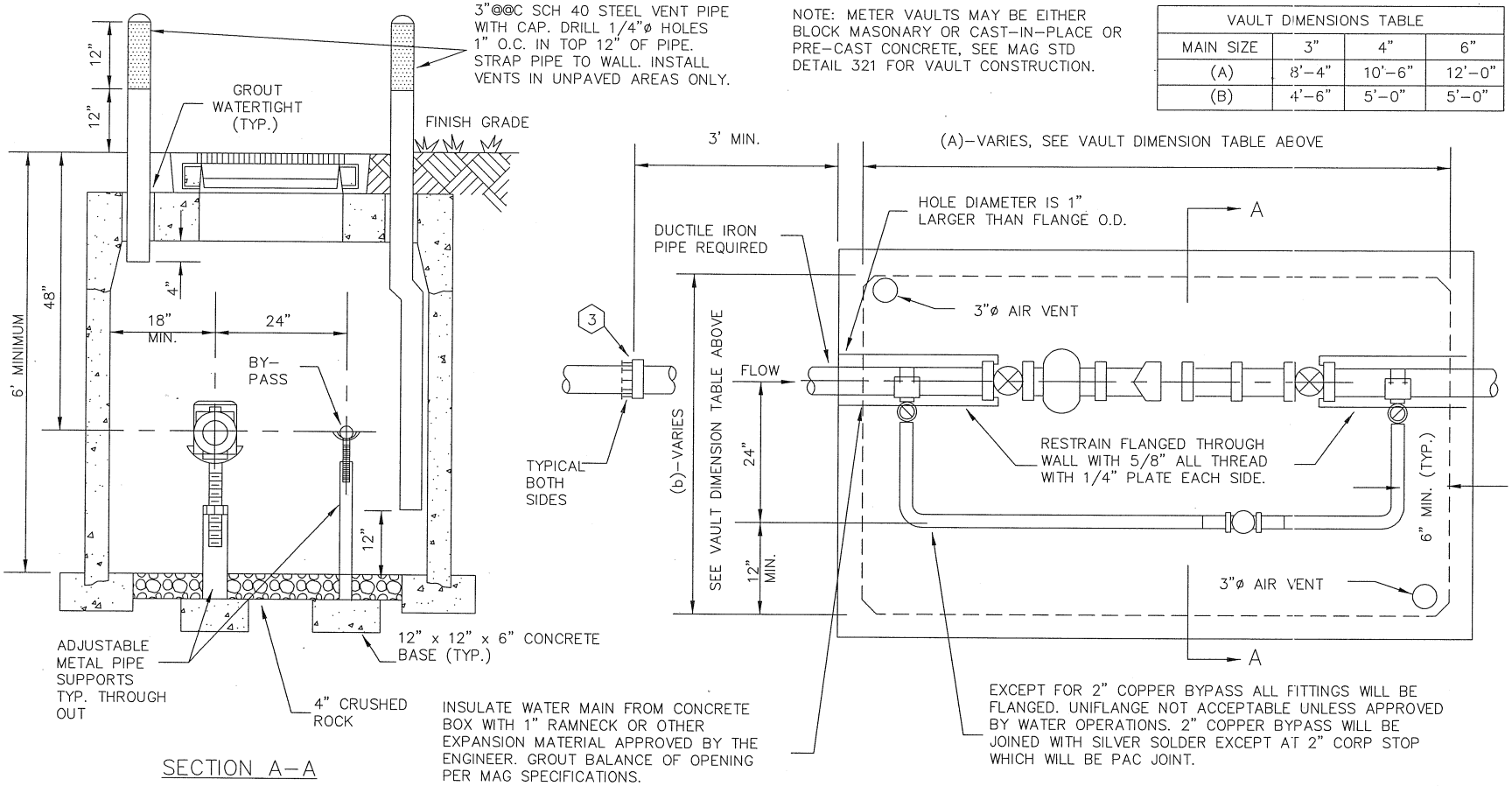
1. ADAPTER, FLANGED TO MECHANICAL JOINT FOR A.C.P. A 4' X 3" REDUCER IS REQUIRED FOR A 3" METER. REDUCER SHALL BE BETWEEN 4" SUPPLY PIPE AND 3" GATE VALVE.
2. D.I.P. SPOOL, 12" FLANGED WITH 2" TAP.
3. R.S. GATE VALVE, FLANGED, WITH HAND WHEEL, LEFT TO OPEN.
4. SPOOL, 12" FLANGED TO FLANGED.
5. COMPOUND METER, TO BE SUPPLIED BY CITY FORCES.
6. FLANGED COUPLING ADAPTER, TO CONNECT PLAIN END SPOOL TO FLANGED METER.
7. D.I.P. SPOOL, 18" PLAIN END TO FLANGED (3", 4", 6").
8. CORPORATION STOP, 2" (BALL TYPE).
9. 2" HARD (K) COPPER.
10. 2" FLEX COUPLING.
11. PRE-CAST VAULT (UTILITY VAULT CO. OR APPROVED EQUAL).

NOTE:
SUPPORTS UNDER ALL VALVES AND METER PER MAG STD. DET. 345-1.
VAULT TOP TO BE EQUIPPED WITH A 36"X 60" TORSION SPRING ASSISTED DOOR. UTILITY VAULT CO. CATALOG NO. 3660, OR APPROVED EQUAL.

APPROVED BY: Harry J Braylee
CITY ENGINEER

4/28/02
DATE

REVISED: JUNE 2002
PREVIOUS:

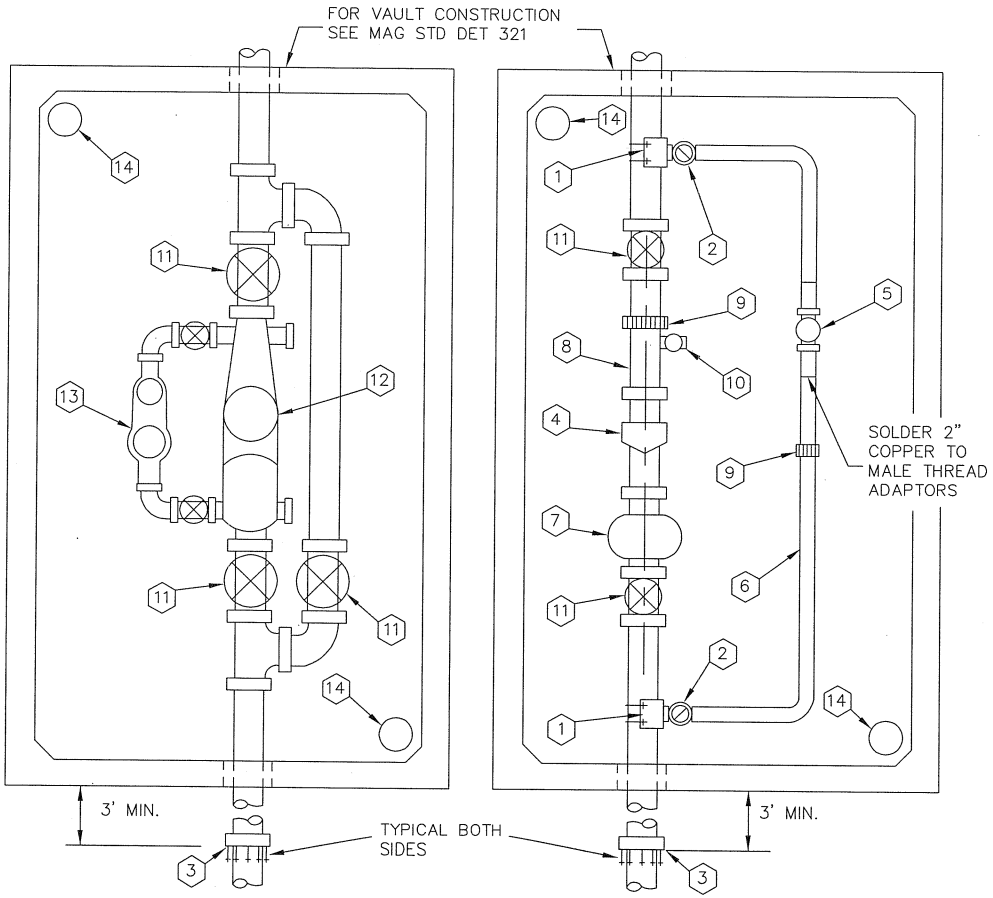


NOTE: METER VAULTS MAY BE EITHER BLOCK MASONARY OR CAST-IN-PLACE OR PRE-CAST CONCRETE, SEE MAG STD DETAIL 321 FOR VAULT CONSTRUCTION.

VAULT DIMENSIONS TABLE			
MAIN SIZE	3"	4"	6"
(A)	8'-4"	10'-6"	12'-0"
(B)	4'-6"	5'-0"	5'-0"

VAULT INSTALLATION

DETAIL NO. G-3313-1	CITY OF GOODYEAR STANDARD DETAIL	APPROVED BY: Goodyear Standards and Policies Committee 7/97	3", 4", 6" WATER METER	DETAIL NO. G-3313-1



COMBINATION DOMESTIC/ FIRE LINE METER

COMPOUND/TURBINE METER

KEY NOTES

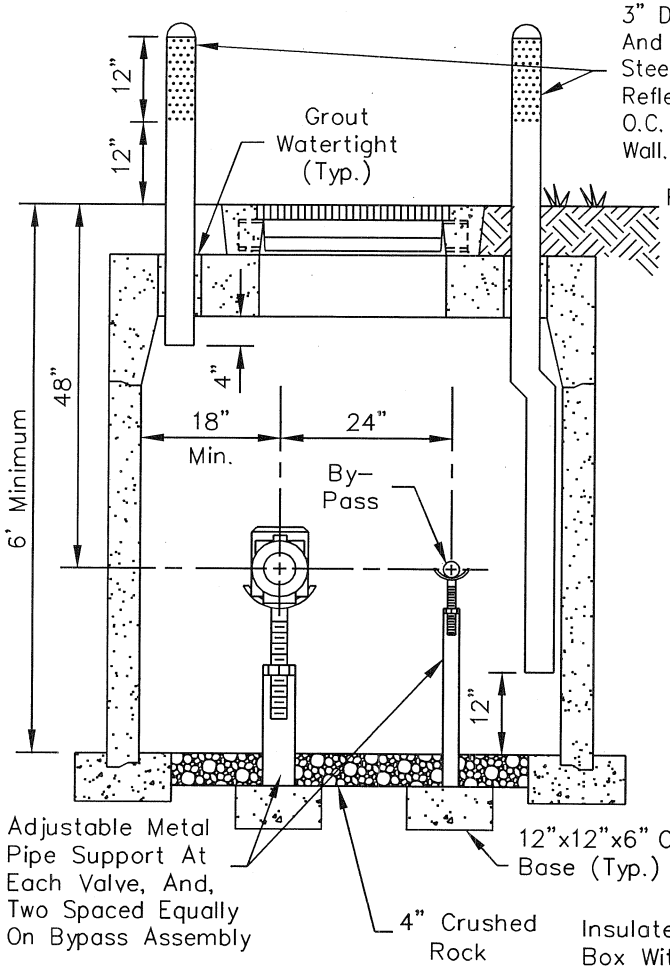
1. DOUBLE STRAP ALL BRONZE SERVICE SADDLE, OR FLANGED x FLANGED TEE WITH FLANGED x FLANGED VALVE FOR SIZES 3" OR LARGER
2. CORP. STOP 2" (BALL TYPE), OR R.W. GATE VALVE WITH NON-RISING STEM HANDWHEEL OPERATOR FOR 3" OR LARGER.
3. ADAPTOR, FLANGED TO MECH. JOINT FOR A.C.P.
4. TURBOMETER, SENSUS SERIES "W" OR HERSEY SERIES "MHR" OR NEPTUNE TRIDENT TURBINE.
5. BRONZE CHECK VALVE FOR 2" LINE, CAST IRON WITH COUNTERWEIGHT FOR 3" LINES AND LARGER. (SAME SIZE AS BY-PASS LINE)
6. 2" RIDGED TYPE "K" COPPER BY-PASS LINE, 3" OR LARGER TO BE DUCTILE IRON. NOT LES THAN ONE PIPE SIZE SMALLER THAN METER IN NOTE 4.
7. STRAINER, SUPPLIED WITH METER.
8. FLANGED SPOOL, (3 PIPE DIAMETERS IN LENGTH, MIN.)
9. PROVIDE VICTAULIC COUPLING OR APPROVED EQUAL FOR ALL LINES 3" OR LARGER.
10. 2" THREADED OUTLET AND BALL VALVE NOT NEEDED IF VERTICAL TEST VALVE IS PROVIDED ON METER.
11. RESILIENT WEDGE GATE VALVE, FLANGED, WITH HAND WHEEL, OPEN LEFT, WITH NON-RISING STEM.
12. TURBOMETER U.L. APPROVED: SENSUS W-5000 DR OR W-2000 DR OR HERSEY FM-CT OR NEPTUNE TURBINE-FS-UL.
13. 2" TURBINE METER: SENSUS "W-160" OR HERSEY "MHR" OR NEPTUNE TRIDENT TURBINE.
14. 3"ø AIR VENT, SEE SHEET 1 OF 2.

NOTES

1. FOR LARGER METERS SPECIAL VAULT DESIGN IS REQUIRED.
2. USE OF REMOTE READING DEVICE AT OPTION OF UTILITY.
3. AN APPROVED BACKFLOW PREVENTION ASSEMBLY SHALL BE REQUIRED DOWNSTREAM OF THE WATER METER. CONTACT WATER RESOURCES, BACKFLOW PREVENTION FOR SPECIFIC INFORMATION.

DETAIL NO. G-3313-2	CITY OF GOODYEAR STANDARD DETAIL	APPROVED BY: Goodyear Standards and Policies Committee 7/97	3", 4", 6" WATER METER	DETAIL NO. G-3313-2

REVISED 2/27/01

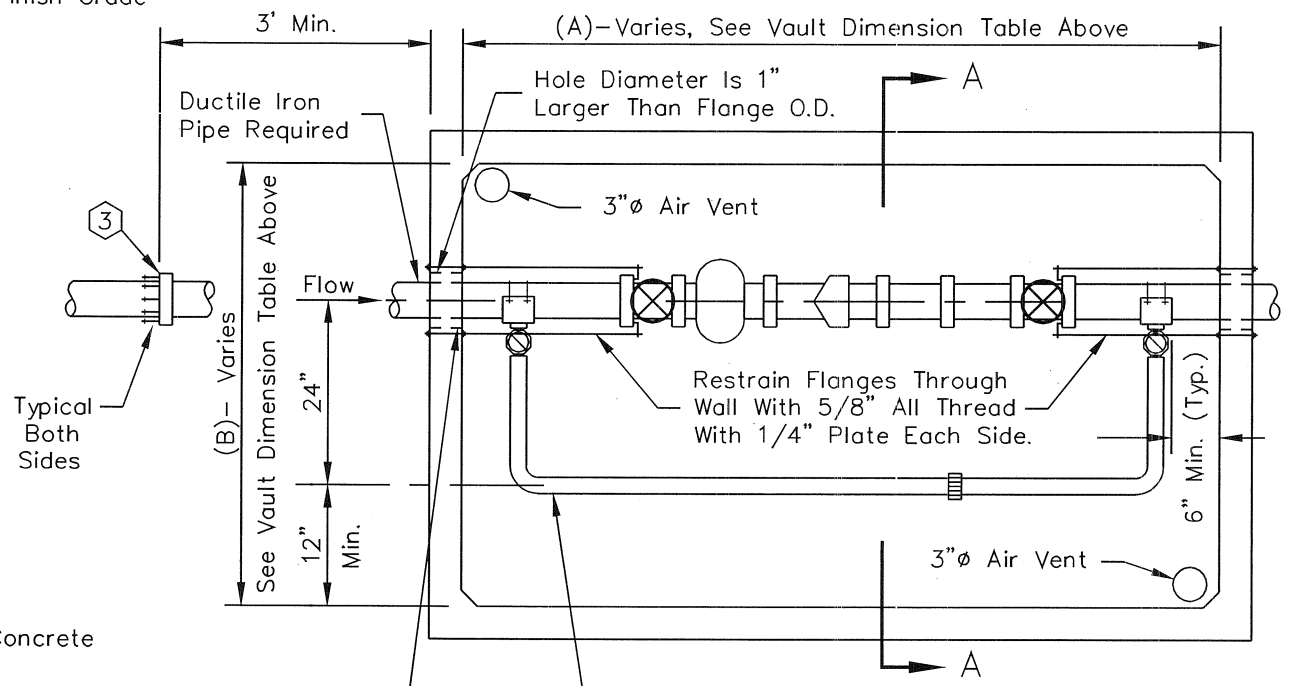


SECTION A-A

3" Dia. Sch 40 Steel Vent Pipe W/ Cap And Bracket as Manufactured By Blue Dot Steel Or Approved Equal. Wrap Pipe With Reflective Tape Then Drill 1/4"ø Holes 1" O.C. In Top 12" Of Pipe. Strap Pipe To Wall. Install Vents In Unpaved Areas Only.

NOTE: Meter Vaults To Be Pre-Cast Concrete Unless Otherwise Approved By Water Operations. See MAG Std Detail 321 For Vault Construction.

VAULT DIMENSION TABLE			
MAIN SIZE	3"	4"	6"
(A)	8'-4"	10'-6"	12'-0"
(B)	4'-6"	5'-0"	5'-0"



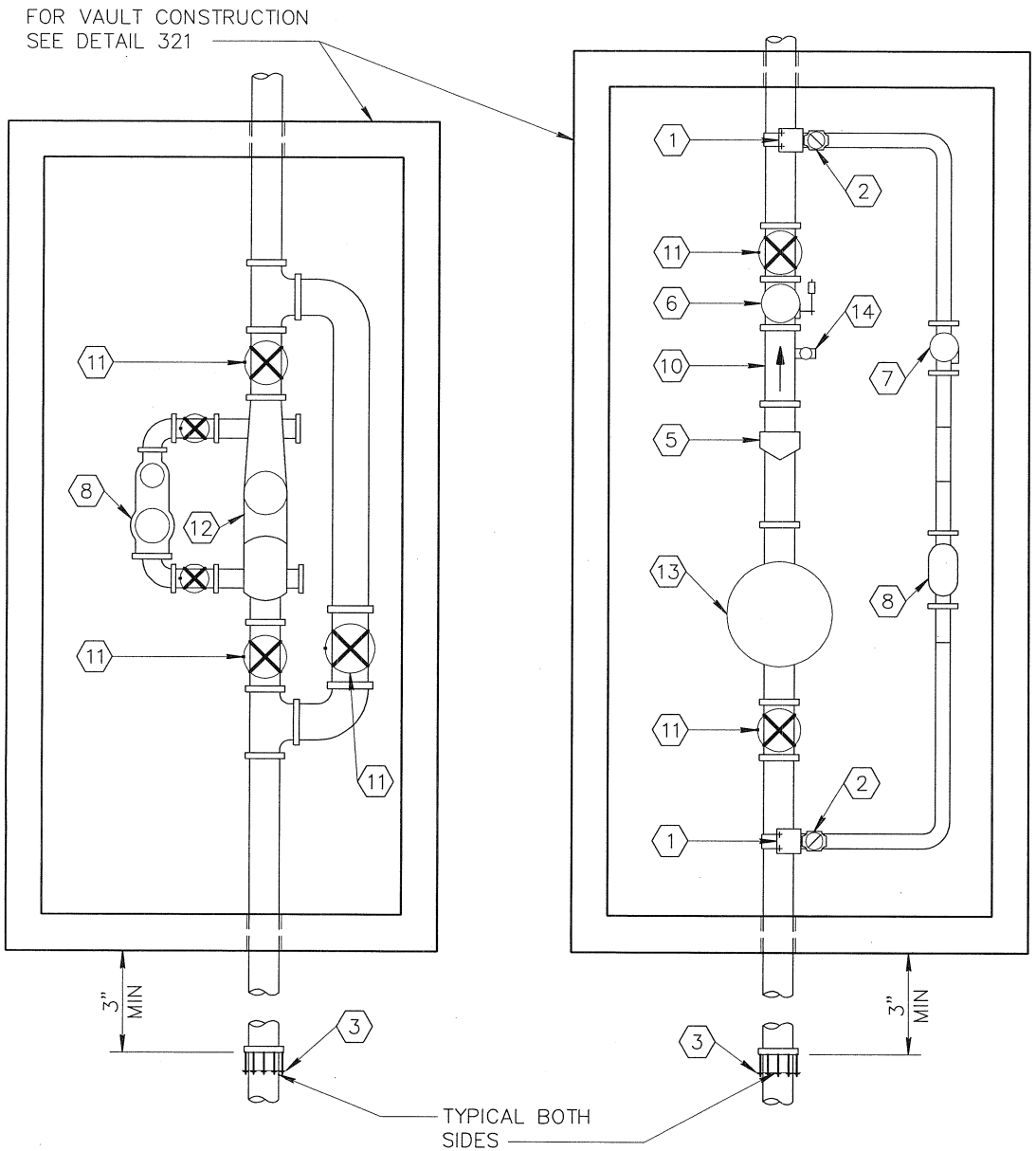
Insulate Water Main From Concrete Box With 1" Ramneck Or Other Expansion Material Approved By The Engineer. Grout Balance Of Opening Per MAG Specifications.

Except For 2" Copper Bypass All Fittings Will Be Flanged. Uniflange Not Acceptable Unless Approved By Water Operations. 2" Copper Bypass Will Be Joined With Silver Solder Except At 2" Corp Stop Which Will Be Pac Joint.

PLAN

VAULT INSTALLATION

DETAIL NO. 2345-1	City of Scottsdale Standard Details	APPROVED BY: Scottsdale Standards & Specifications Committee	3", 4", 6" WATER METER	DETAIL NO. 2345-1



LEGEND

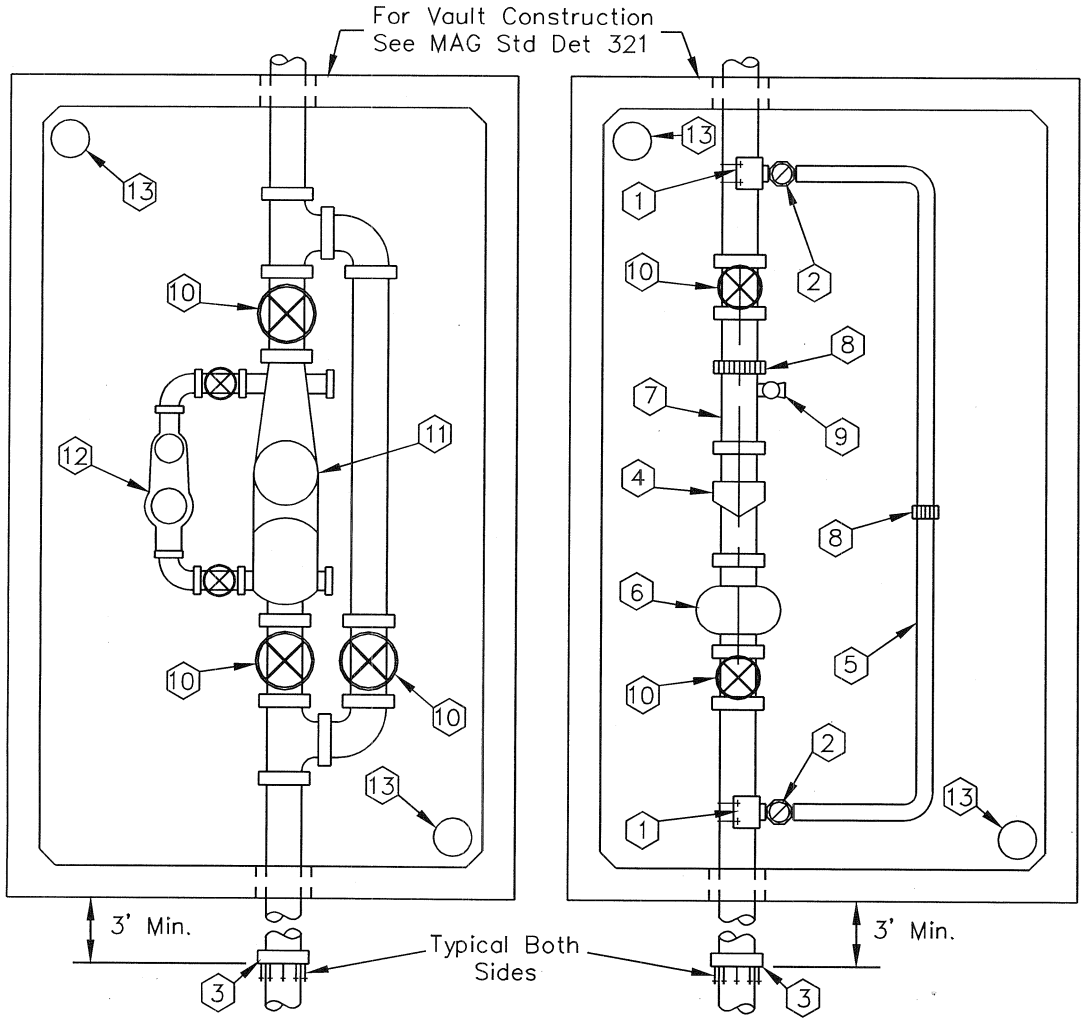
1. DOUBLE STRAP ALL BRONZE SERVICE SADDLES.
2. CORP. STOP, 2" (BALL TYPE).
3. ADAPTER, FLANGED, TO MECH. JOINT FOR A.C.P.
4. GATE VALVE, FLANGED, WITH HAND WHEEL, OPEN LEFT.
5. TURBOMETER: ROCKWELL SERIES 'W' OR HERSEY SERIES 'M.H.R.' OR NEPTUNE TRIDENT TURBINE.
6. FLANGED SWING CHECK VALVE WITH EXTERNAL LEVER AND WEIGHT.
7. 2" BRONZE CHECK VALVE.
8. 2" TURBOMETER: ROCKWELL 'W–160' OR HERSEY 'M.H.R.' OR NEPTUNE TRIDENT TURBINE.
9. STRAINER (3", 4", 6") AVAILABLE FROM METER MANUFACTURER, INSTALL ONLY WHEN 'TURBO' IS USED.
10. FLANGED SPOOL (3 PIPE DIAMETERS IN LENGTH).
11. O.S.&Y. GATE VALVE, FLANGED WITH HAND WHEEL OPEN LEFT, AND RISING STEM.
12. TURBOMETER U.L. APPROVED: ROCKWELL W–5000 DR. OR W–2000 DR. OR HERSEY F.M.–C.T. OR NEPTUNE TURBINE–F.S.–U.L.
13. 6" OR 10" STRAINER, U.L. APPROVED.
14. 2" THREADED OUTLET AND GATE VALVE.

NOTES

1. FOR LARGER METERS, SPECIAL VAULT DESIGN IS REQUIRED.
2. USE OF REMOTE READING DEVICE AT OPTION OF UTILTIY.
3. CERTAIN AGENCIES AND/OR UTILITIES PREFER TO CONSTRUCT VAULT, CONTACT AGENCY INVOLVED PRIOR TO VAULT CONSTRUCTION.

DETAIL NO.			REVISED	DETAIL NO.
345-2	MARICOPA ASSOCIATION of GOVERNMENTS STANDARD DETAIL ENGLISH	4", 6" WATER METER WITH ON-SITE FIRE HYDRANTS		345-2

REVISED 2/27/01



COMBINATION DOMESTIC/ FIRE LINE METER

COMPOUND/TURBINE METER

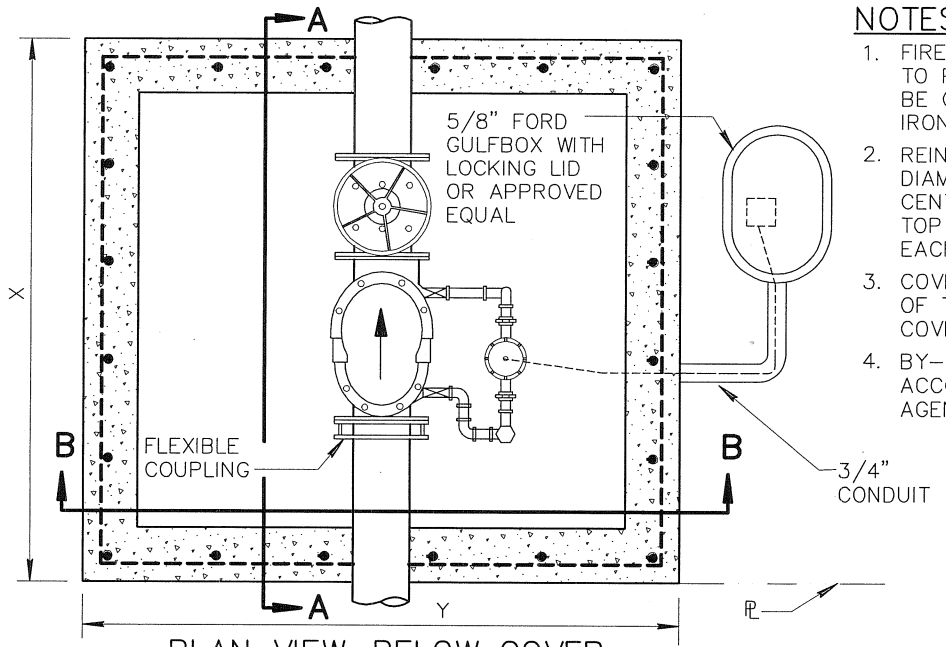
KEY NOTES

1. Double Strap All Bronze Service Saddle, Or Flanged x Flanged Tee With Flanged X Flanged Valve For Sizes 3" Or Larger.
2. Corp. Stop, 2"(Ball Type), Or R.W. Gate Valve With Non-Rising Stem Handwheel Operator For 3" Or Larger.
3. Adaptor, Flanged To Mech. Joint For A.C.P.
4. Turbine (High Flow) Or Compound Meter, See Note 4 Below.
5. 2" Ridged Type "K" Copper By-Pass Line, 3" Or Larger To Be Ductile Iron. Not Less Than One Pipe Size Smaller Than Meter In Note 4.
6. Strainer, Supplied with Meter.
7. Flanged Spool, (3 Pipe Diameters In Length, Min.).
8. Provide Victaulic Coupling Or Approved Equal For All Lines 3" Or Larger.
9. 2" Threaded Outlet And Ball Valve. Not Needed If Vertical Test Valve Is Provided On Meter.
10. Resilient Wedge Gate Valve, Flanged, With Hand Wheel, Open Left, With Non-Rising Stem.
11. Turbine (High Flow) Or Compound Meter, See Note 4 Below.
12. 2" Turbine Meter: Sensus "W-160" Or Hersey "MHR" Or Neptune Trident Turbine.
13. 3"ø Air Vent, See Sheet 1 Of 2.

NOTES

1. For Larger Meters Special Vault Design Is Required.
2. Use Of Remote Reading Device At Option Of Utility.
3. An Approved Backflow Prevention Assembly Shall Be Required Downstream Of The Water Meter. Contact Water Resources, Backflow Prevention For Specific Information.
4. Meter To Be Provided By City Upon Payment Of Fees.

DETAIL NO. 2345-2	City of Scottsdale Standard Details	APPROVED BY: Scottsdale Standards & Specifications Committee	3, 4", 6" WATER METER	DETAIL NO. 2345-2

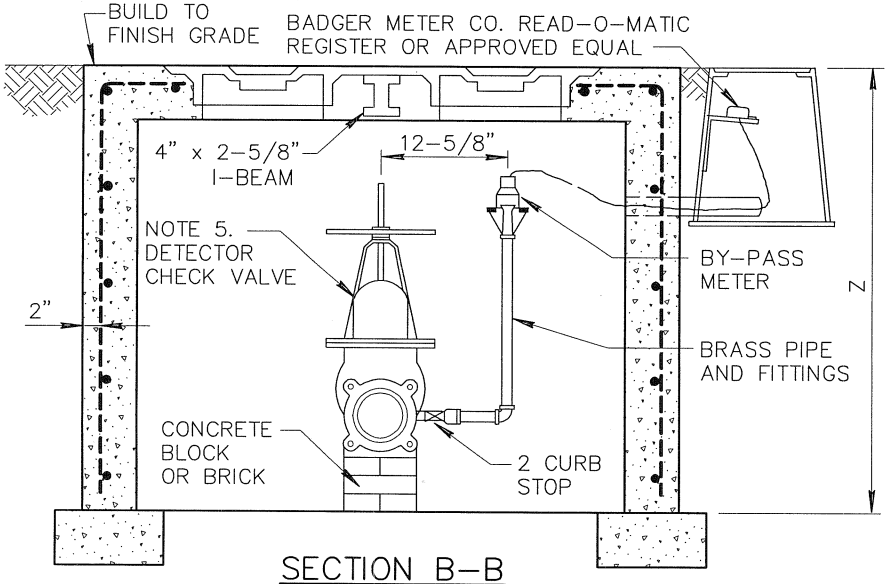


PLAN VIEW–BELOW COVER

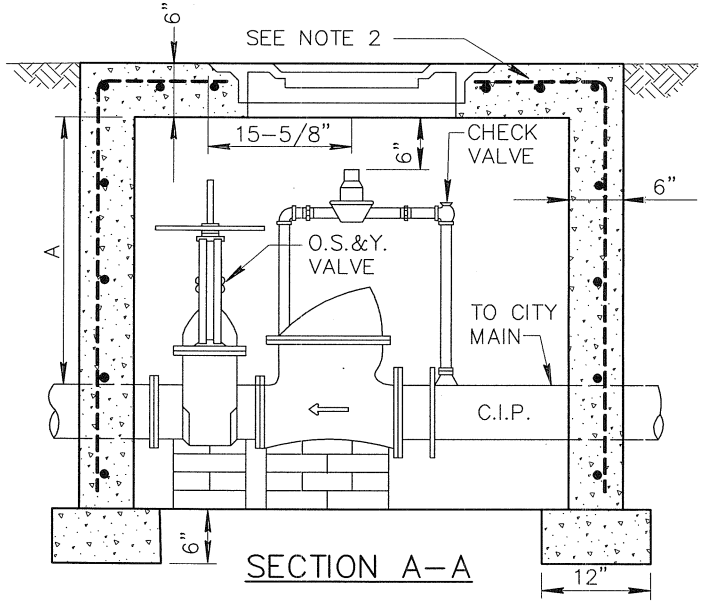
NOTES:

1. FIRELINE FROM CITY MAIN TO PROPERTY LINE SHALL BE CONSTRUCTED OF CAST IRON PIPE.
2. REINFORCING TO BE 1/2" DIAMETER REBAR ON 6" CENTERS EACH WAY ON TOP AND 12" CENTERS EACH WAY ON THE SIDES.
3. COVERS TO CONSIST OF TWO METER BOX COVERS DET. 314.
4. BY–PASS METER TO BE ACCORDING TO GOVERNING AGENCY.
5. CHECK VALVE TO BE GLOBE MODEL "A" GRINNEL, HERSEY MODEL D.C., VIKING MODEL "A" OR APPROVED EQUAL.
6. VAULT SHALL BE CONSTRUCTED IN OWNERS PROPERTY AGAINST THE FRONT PROPERTY LINE OR ANOTHER APPROVED LOCATION. WALLS AND FENCES SHALL NOT OBSTRUCT ACCESS.
7. CITY CONTROL VALVE TO BE REQUIRED AT MAIN.
8. PARTS OF PIPE TO BE EMBEDDED IN CONC. SHALL BE WRAPPED WITH 30 LB ASPHALT ROOFING FELT.
9. REMOTE READING DEVICE SHALL BE OF SELF GENERATING ELECTRICAL TYPE. HYDRAULIC OR MECHANICAL DRIVE REGISTERS WILL NOT BE ACCEPTABLE.
10. CONCRETE TO BE CLASS 'B' PER SECT. 725.

DIA. OF PIPE	X	Y	Z	BY–PASS METER SIZE	A
4"	60"	66"	49"	5/8" x 3/4"	30"
6"	66"	72"	49"	5/8" x 3/4"	30"
8"	72"	72"	58"	1"	36"
10"	78"	72"	69"	1–1/2"	36"

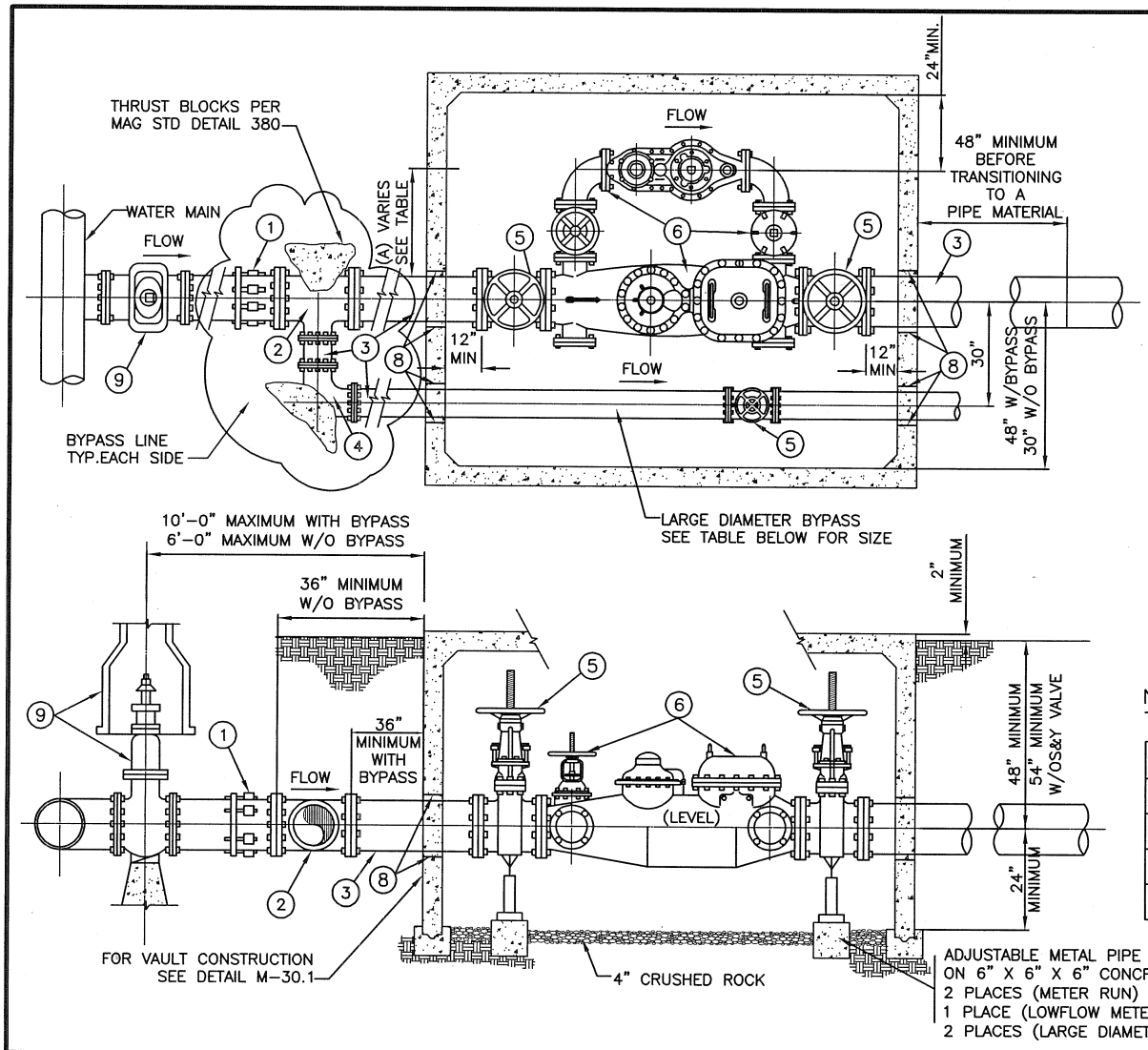


SECTION B–B



SECTION A–A

DETAIL NO.			REVISED	DETAIL NO.
346	MARICOPA ASSOCIATION of GOVERNMENTS STANDARD DETAIL ENGLISH	FIRE LINE DETECTOR CHECK VAULT		346



LIST OF MATERIALS

1. ADAPTER, FLANGED TO MECHANICAL JOINT FOR A.C.P.
2. FLANGED C.I.P. TEE – BRANCH TO BE 1–PIPE DIAMETER SMALLER THAN RUN.
3. C.I.P. SPOOL, FLANGED BOTH ENDS.
4. FLANGED C.I.P. 90° ELBOW.
5. O.S.& Y. RISING STEM VALVE, FLANGED WITH HANDWHEEL, OPEN LEFT. APPROVED RESILIENT WEDGE GATE VALVES INCLUDE MUELLER, AMERICAN DARLING, AND WATEROUS.
6. WATER METER: HERSEY MODEL MFM II WITH TRIM VALVES ON LOW FLOW METER.
7. BYPASS LINE FOR CITY MAINTENANCE USE ONLY. SHOULD BE LOCKED OFF DURING NORMAL OPERATION.
8. GROUT WALLS OF VAULT AT EACH PIPE OPENING PER DETAIL M–30.1.
9. GATE VALVE, VALVE BOX AND COVER PER M.A.G. STANDARD DETAIL 391–1, TYPE "C".

NOTE: ALL METERS SHALL BE PURCHASED FROM THE CITY OF MESA.

BYPASS DATA TABLE				
METER SIZE	4"	6"	8"	10"
LARGE BYPASS SIZE* (7)	3"	4"	6"	8"
METERED BYPASS SIZE	2"	3"	4"	6"
DIMENSION (A) ±1"	17"	21"	26"	33"

*BYPASS MAY BE DELETED IF DEVELOPMENT IS LOOP SERVED BY MORE THAN ONE UL APPROVED METER OR IF METER IS FOR NON FIRE HYDRANT APPLICATION.

DOMESTIC AND FIRE SERVICE WATER METER (WITH OR WITHOUT ON–SITE FIRE HYDRANT)

DETAIL NO. M–27.1

REV. 01/13/03

1. HERSEY MFM II – MCT II VAULT METERS CONSIST OF THREE (3) MEASUREMENTS OF FLOW OF WATER AND IS CONSIDERED A PROPORTIONAL METER.
   A. LOW FLOW REGISTRATION
   B. HIGH FLOW REGISTRATION
   C. MAINLINE REGISTRATION WHICH IS NORMALLY THE LINE SIZE OF SOURCE OF SUPPLY.

   THE LOW AND HIGH FLOW SECTION IS DESIGNED TO BE OF A COMPOUND NATURE CONTAINING A DISC SECTION (LOW FLOW) AND A TORRENT WHEEL SECTION (HIGH FLOW). THIS COMPOUND SECTION IS ATTACHED TO THE MAINLINE SECTION BY MEANS AND USE OF A WHEEL VALVE AND A CHECK VALVE. THE SOURCE OF SUPPLY IS TRANSMITTED THROUGH THE MAINLINE IF MAXIMUM FLOW IS DEMANDED. OTHER THAN MAXIMUM FLOW WATER IS REGISTERED THROUGH THE LOW AND HIGH FLOW SECTION AT CONSIDERABLE LOWER RATES OF FLOW IN PROPORTION TO THE REQUIREMENTS ON DEMAND.

2. MFM II – MCT II METERS ARE DESIGNED TO BE SERVICED, MAINTAINED, AND TESTED IN THE LINE. SHOP REPAIR WOULD BE CONSIDERED UNECONOMICAL AND UNNECESSARY. THESE METERS ARE FREQUENTLY SET IN PAIRS OR TO EFFECT A LOOP SYSTEM TO PROVIDE NONDISRUPTIVE SERVICE TO THE CUSTOMER WHILE EITHER METER IS BEING REPAIRED OR SERVICED.

3. A LARGE UNMETERED BYPASS IS REQUIRED TO INSURE CUSTOMER SUPPLY OF WATER IF THERE ARE NOT TWO (2) SEPARATE METERS FEEDING THE CUSTOMER AND LOOPED DOWNSTREAM THROUGH CUSTOMER SYSTEM.

4. FLOW RATES PER SIZE NOTED BELOW:
   A. MINIMAL FLOW REGISTRATION
   B. RECOMMENDED CONSTANT USE FLOW
   C. MAXIMUM FLOW CAPACITIES (RATED)

DETECTOR WATER METER		
4" – A = 1/4 G.P.M.	B = VARIED G.P.M.	C = 700 G.P.M. (BYPASS UNMETERED SINGLE FEED)
6" – A = 1/2 G.P.M.	B = VARIED G.P.M.	C = 1600 G.P.M. (BYPASS UNMETERED SINGLE FEED)
8" – A = 3/4 G.P.M.	B = VARIED G.P.M.	C = 2800 G.P.M. (BYPASS UNMETERED SINGLE FEED)
10" – A = 1 1/2 G.P.M.	B = VARIED G.P.M.	C = 4400 G.P.M. (BYPASS UNMETERED SINGLE FEED)

5. NOTE: AT LOW FLOW RATES ALL FLOW IS THROUGH THE LOW FLOW SECTION. WHEN PRESSURE LOSS THROUGH THE LOW FLOW SECTION APPROACHES FOUR (4) P.S.I., THE MAINLINE VALVE AUTOMATICALLY OPENS TO ALLOW FLOW THROUGH THE MAINLINE SECTION. THESE METERS ARE CAPABLE OF PICKING UP VERY LOW RATES FOR THEIR SIZE COMPARED TO A TURBINE METER OF EQUAL SIZE. READINGS FROM ALL THREE (3) REGISTERS ARE COMBINED TO PROVIDE TOTAL CONSUMPTION INFORMATION.

6. THIS DETAIL SHOULD BE USED FOR VERY HIGH OR VERY LOW FLOWS ON COMBINATION FIRE/DOMESTIC SERVICE INSTALLATIONS OR VERY LARGE DOMESTIC ONLY SYSTEM.

7. BYPASS MAY BE DELETED IF DEVELOPMENT IS LOOP SERVED BY MORE THAN ONE UL APPROVED METER.

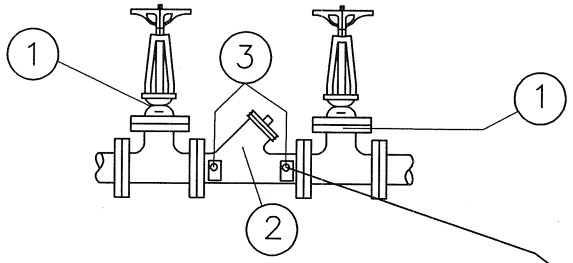
8. TYPE "K" COPPER (HARD) MAY BE SUBSTITUTED FOR C.I.P. FITTINGS AND PIPE SIZES UP TO 4". ALL COPPER PIPE JOINTS SHALL BE SOLDERED. THE SOLDER ALLOY SHALL COMPLY WITH ASTM B 32 HAVING A SILVER CONTENT OF NOT LESS THAN 3.4% INTENDED FOR JOINING COPPER PIPES FOR POTABLE WATER SYSTEMS (GRADES SN 94, SN 95 OR SN 96). THE FLUX SHALL BE TYPE OA FOR GENERAL SOLDERING ON COPPER.

9. ALL METERS SHALL BE PURCHASED FROM THE CITY OF MESA.

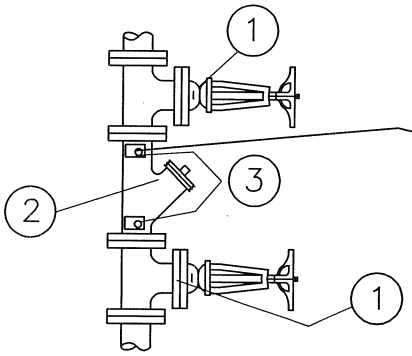
NOTES FOR DOMESTIC AND FIRE SERVICE WATER METER (WITH OR WITHOUT ON-SITE FIRE HYDRANTS)

DETAIL NO. M-27.2

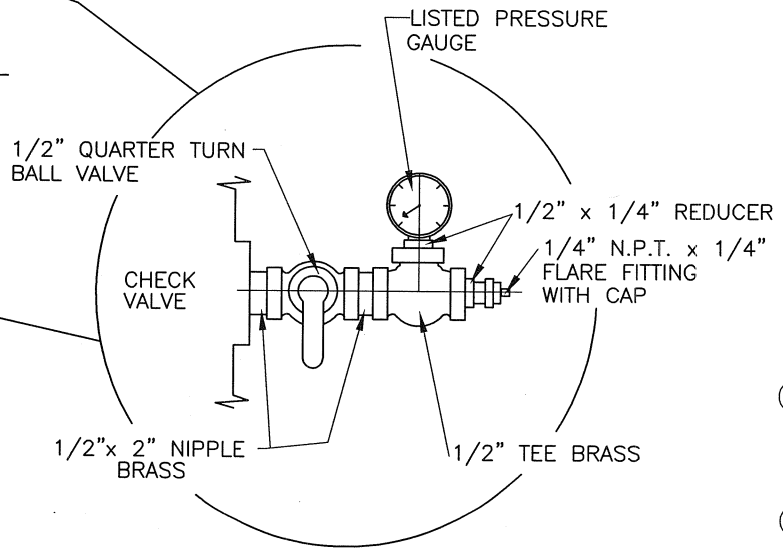
REV. 09/27/99



HORIZONTAL ORIENTATION



VERTICAL ORIENTATION



DETAIL A

GENERAL NOTES

1. CHECK VALVE SHALL BE TESTED FOR PROPER OPERATION PER C.O.M. REQUIREMENTS BY A CERTIFIED TESTER RECOGNIZED BY THE CITY BEFORE A FINAL APPROVAL IS ISSUED.
2. CONTACT C.O.M. WATER QUALITY SERVICES FOR A CURRENT LIST OF CERTIFIED TESTERS.
3. CONTACT C.O.M. BUILDING SAFETY DIVISION, FIRE PLAN REVIEW FOR FIRE PREVENTION CODE REQUIREMENTS.
4. PROVIDE 12–INCH MINIMUM CLEARANCE BETWEEN CHECK VALVE PIPING & STRUCTURES.
5. LOCATION OF ASSEMBLY SHALL BE AS APPROVED BY BUILDING INSPECTIONS.
6. ASSEMBLIES NOT INSTALLED WITHIN A BUILDING SHALL BE PRIMED AND PAINTED LIGHT TAN OR A COLOR TO MATCH THE BUILDING OR SURROUNDINGS. DO NOT PAINT THE NAME PLATE OR ANY BRASS PARTS OF THE ASSEMBLY.

LIST OF MATERIALS

(1) APPROVED RESILIENT SEATED INDICATING SHUT OFF VALVE (2 REQUIRED) U.L. LISTED OR FM APPROVED FOR USE ON FIRE PROTECTION SYSTEMS.

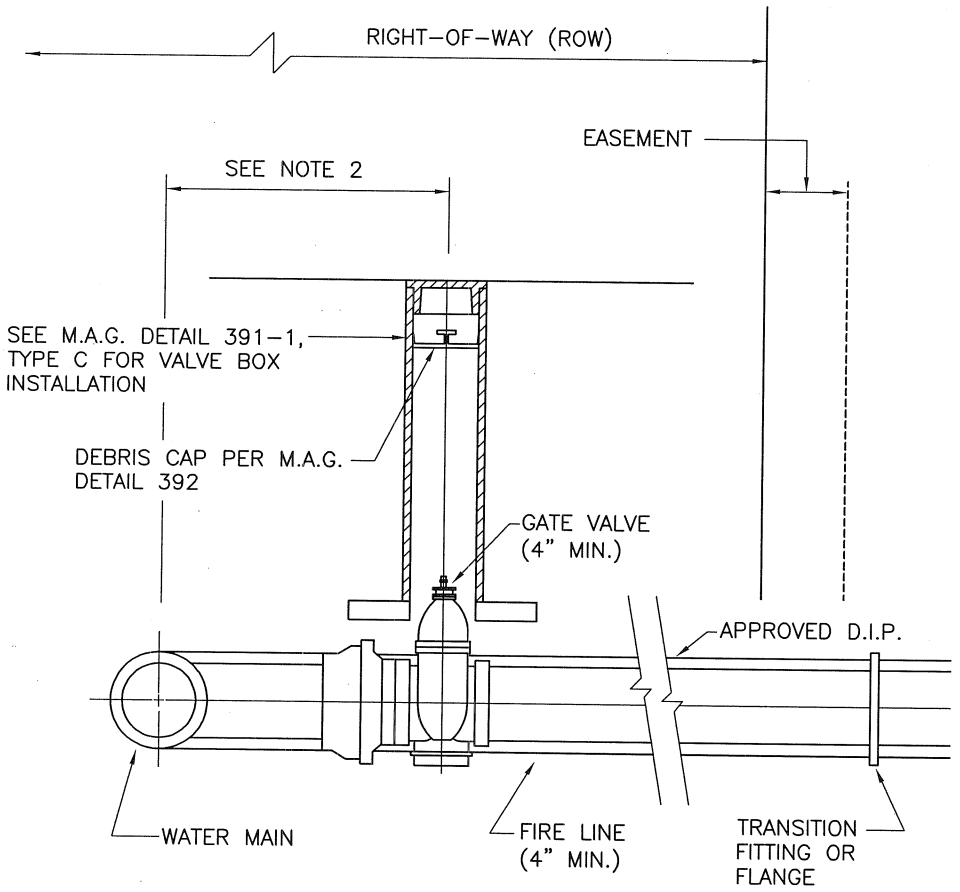
(2) APPROVED RESILIENT SEATED, INTERNALLY SPRING LOADED, CHECK VALVE (FEBCO 800, WATTS 07F, AMES 1000DCV, OR EQUIVALENT) U.L. LISTED APPROVED FOR USE ON FIRE PROTECTION SYSTEMS.

(3) LISTED PRESSURE GAUGE AND APPROVED TEST COCK PIPING (2 REQUIRED) (SEE DETAIL A)

CHECK VALVE ASSEMBLY FOR CLASS I & II FIRE PROTECTION SYSTEMS

DETAIL NO. M–31.6

REV. 02/01/02



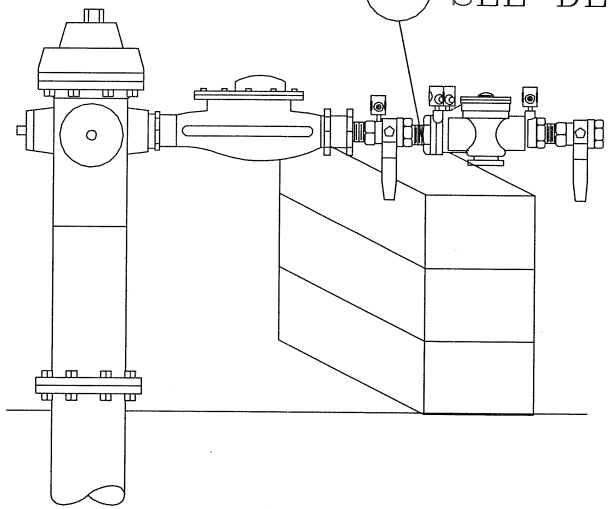
NOTES

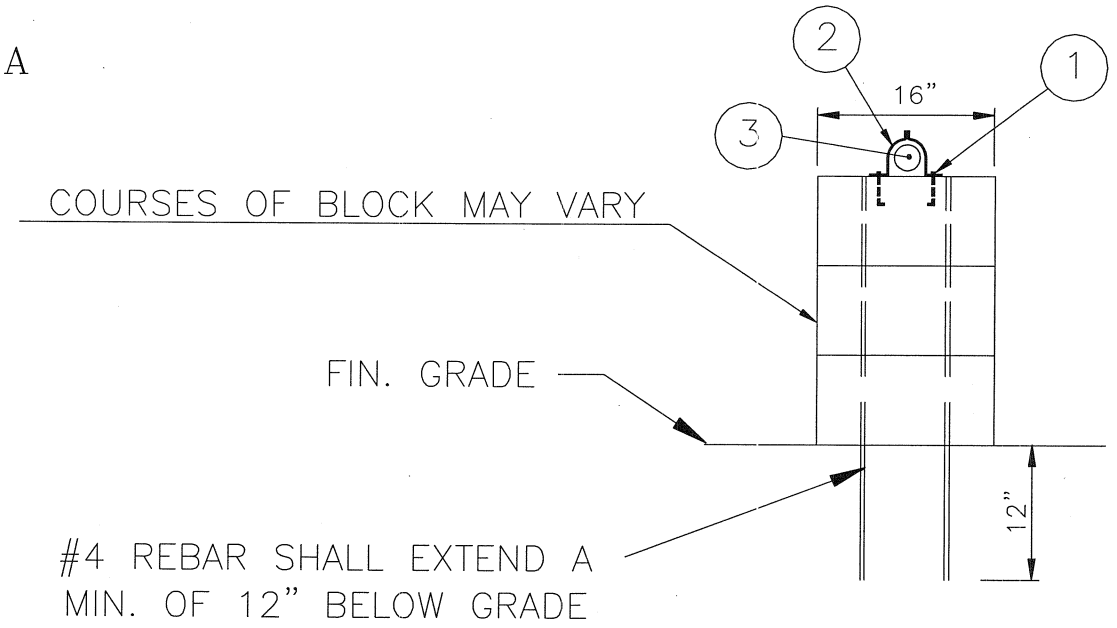
1. AN APPROVED VALVE BOX ASSEMBLY WITH "DEBRIS CAP" SHALL BE INSTALLED ON ALL FIRE LINES PER M.A.G. DETAIL 391–1, TYPE C.
2. VALVES SHALL BE INSTALLED AS NEAR AS PRACTICAL TO POINT OF TAKE–OFF FROM MAIN.
3. VALVES SHALL MEET OR EXCEED REQUIREMENTS OF M.A.G. SECTION 630 AS AMENDED BY THE CITY OF MESA AND SHALL HAVE A MINIMUM WORKING PRESSURE RATING OF 200 PSIG. VALVE SHALL BE A GATE VALVE WITH A 2" SQUARE OPERATING NUT AND DESIGNED TO PREVENT CLOSURE IN LESS THAN FIVE (5) SECONDS FROM FULL OPEN POSITION.
4. VALVES SHALL BE SAME SIZE AS FIRE LINE. IN NO CASE SHALL THE VALVE BE SMALLER THAN 4". ON FIRE LINES SMALLER THAN 4", THE LINE SHALL NOT BE REDUCED TO SMALLER THAN 4" UNTIL BEYOND THE RIGHT–OF–WAY OR EASEMENT IF AN EASEMENT EXISTS.
5. THE PORTION OF FIRE LINE LOCATED IN AN EASEMENT OR ROW SHALL BE APPROVED DIP ONLY. OWNER MAY INSTALL OTHER SUITABLE FIRE LINE MATERIALS APPROVED BY THE BUILDING SAFETY DEPT. FOR LINE BEYOND EASEMENT OR ROW. IN THIS CASE, AN APPROVED TRANSITION FITTING OR FLANGE SHALL BE INSTALLED BEYOND THE ROW OR EASEMENT IF AN EASEMENT EXISTS.
6. OWNER OF FIRE LINE SHALL BE RESPONSIBLE FOR LOCATING, REPAIRING, REPLACING, MOVING, OR MODIFYING TRANSITION FITTING AND ALL PIPING BEYOND THE EASEMENT OR ROW.
7. THE CITY SHALL BE RESPONSIBLE FOR LOCATING, REPAIRING, REPLACING, MOVING, OR MODIFYING THE FIRE LINE AND ANY FIRE HYDRANTS LOCATED IN THE EASEMENT OR ROW.

FIRE LINES TO PRIVATE PROPERTY

DETAIL NO. M–31.7

REV. 02/01/02



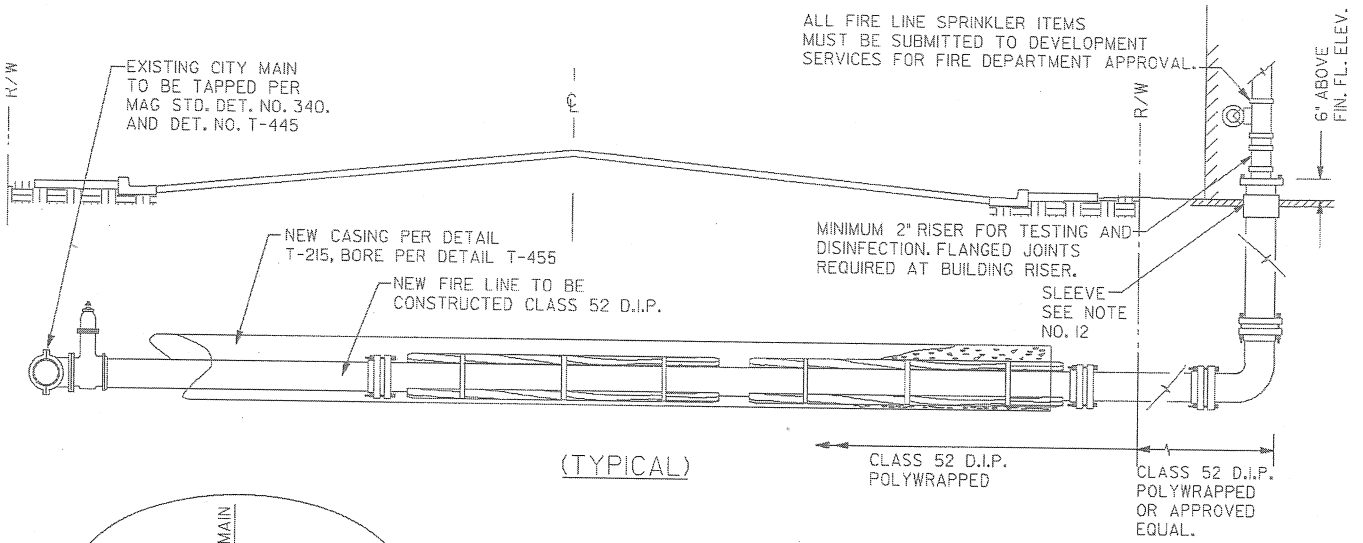


Detail A

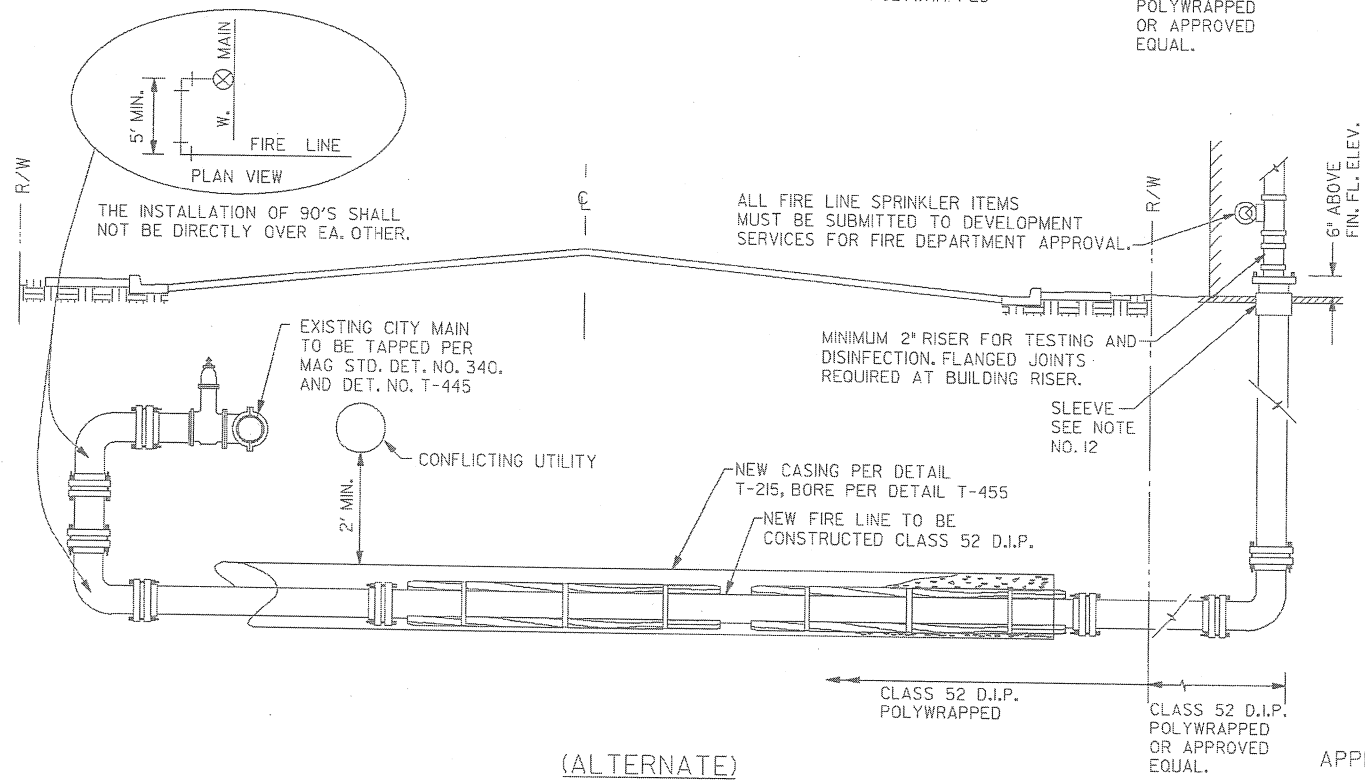
NOTES:

1. SECURE BACKFLOW ASSEMBLY WITH APPROVED ANCHORS TO 8"X8"X16" TYPE "B" CONCRETE FILLED BLOCK WITH 2 #4 REBARS. ASSEMBLY SHALL BE TESTED BY CERTIFIED BACKFLOW TESTER.
2. 2-PIECE CLAMP WITH APPROVED ANCHORS.
3. BACKFLOW ASSEMBLY FOR USE WITH DETAIL P1354.
4. CONTACT CITY OF PHOENIX DEVELOPMENT SERVICES DEPARTMENT, CROSS-CONNECTION CONTROL FOR A LIST OF APPROVED BACKFLOW PREVENTION ASSEMBLIES.

DETAIL NO.		TEMPORARY SUPPORT FOR FIRE HYDRANT BACKFLOW ASSEMBLY	APPROVED	DETAIL NO.
P1356	City of Phoenix STANDARD DETAIL		CITY ENGINEER — 6-27-01 DATE	P1356



(TYPICAL)



(ALTERNATE)

NOTES

1. BORE REQUIRED UNLESS AN "OPEN CUT" IS APPROVED IN WRITING BY THE CITY ENGINEER.

2. ALL WATERLINES WILL BE FLUSHED, PRESSURE TESTED, AND DISINFECTED IN ACCORDANCE WITH MAG SECTION 610 THROUGH A TEST POINT INSTALLED AT THE RISER.

3. ALL PIPE TO BE 6" DIA. CLASS 52 D.I.P POLYWRAPPED FROM THE MAIN TO THE PROPERTY LINE (UNLESS CALCULATIONS ARE SUBMITTED AND APPROVED BY FIRE DEPT. FOR SMALLER SIZES).

4. BACKFILL TYPE-I IS REQUIRED WITHIN LIMITS OF RIGHT OF WAY OR EASEMENT. (SECTION 601 OF THE MAG SPECIFICATIONS).

5. WATER DEPARTMENT REPRESENTATIVE MUST BE PRESENT DURING TAP. CONTACT AT PHONE No. 480-350-2634.

6. MIN. COVER IN MAJOR STREETS IS 48", IN OTHER LOCATIONS 36".

7. ALL SPRINKLER AND IRRIGATION SYSTEMS THAT ARE DISTURBED IN THE COURSE OF THE WORK IN AREAS WHERE LANDSCAPE WILL REMAIN SHALL BE REPAIRED. THE REPAIRED SYSTEM SHALL MEET OR EXCEED THE CONDITIONS EXISTING PRIOR TO THE DISTURBANCE.

8. ALL BROKEN OR DISPLACED CONCRETE CURB & GUTTER, SIDEWALK, AND ASPHALT SHALL BE REMOVED AND REPLACED AS DIRECTED BY THE CITY OF TEMPE ENGINEERING DIVISION.

9. THRUST BLOCKS OR RESTRAINED JOINTS IN ACCORDANCE WITH MAG. STANDARDS.

10. ALL WORK OUTSIDE THE PUBLIC RIGHT OF WAY SHALL CONFORM TO NATIONAL FIRE PROTECTION ASSOCIATION STANDARDS.

11. NO REDUCED PRESSURE BACKFLOW OR DOUBLE CHECK BACKFLOW PREVENTION DEVICES ALLOWED ON FIRELINES.

12. 2" MIN. CLEARANCE SHALL BE PROVIDED AROUND ALL PIPING EXTENDING THROUGH WALLS, FLOORS, PLATFORMS, AND FOUNDATIONS, INCLUDING DRAINS, FIRE DEPARTMENT CONNECTIONS, AND OTHER AUXILIARY PIPING.

APPROVED: _____ _____
DEPUTY PUBLIC WORKS MANAGER
CITY ENGINEER
DATE

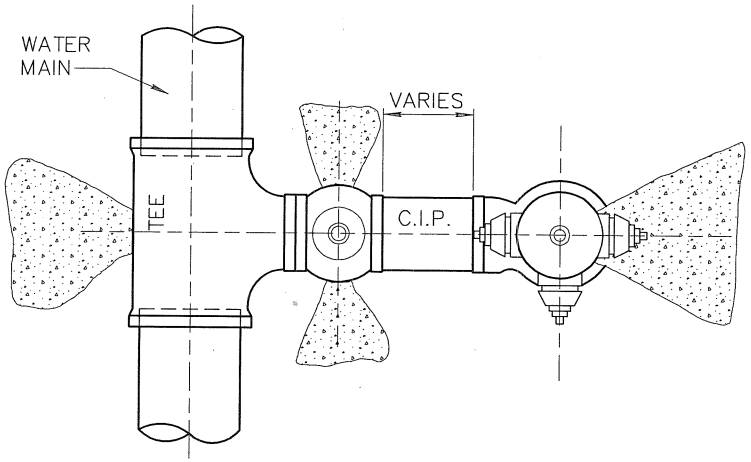
CITY OF TEMPE
PUBLIC WORKS DEPARTMENT

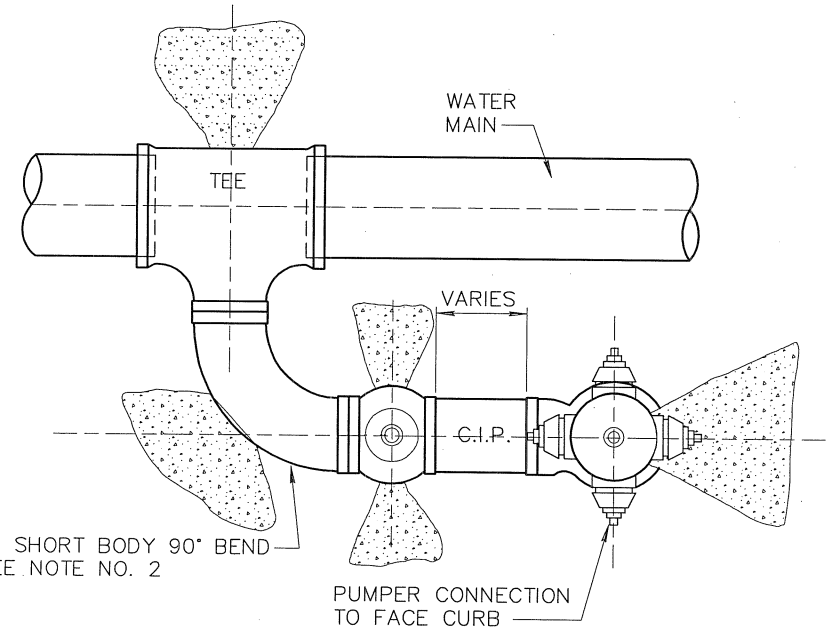
WATERLINE EXTENSION FOR BUILDING FIRE SPRINKLERS

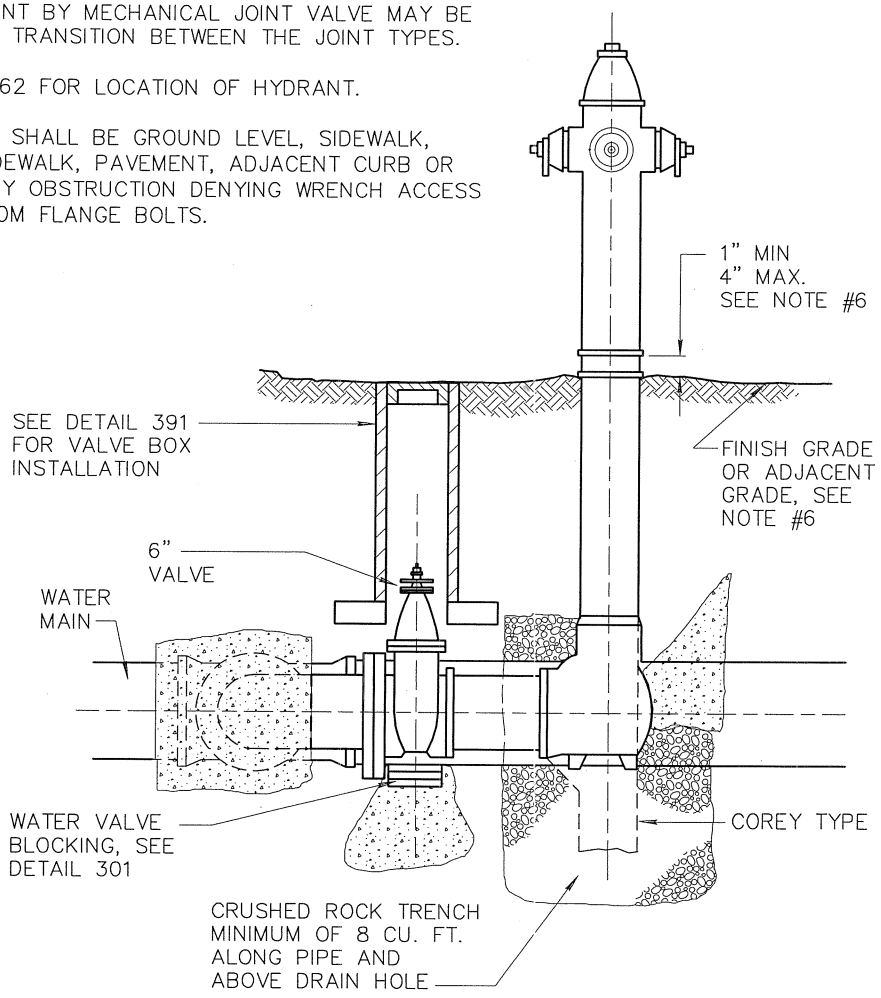
DETAIL T-217
REVISED 2005

NOTES:

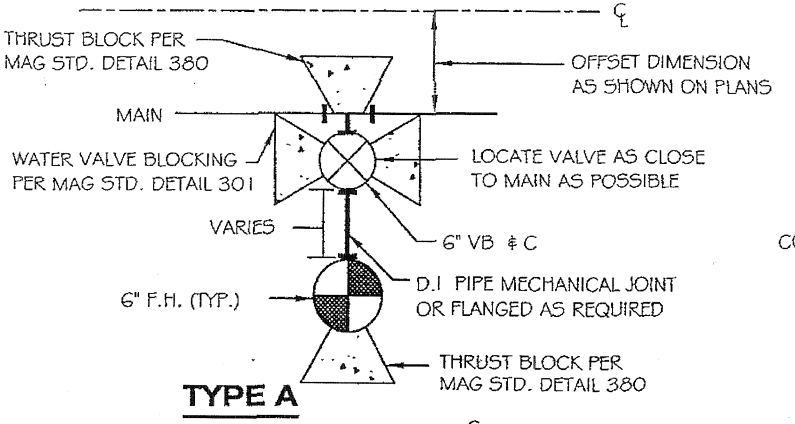
1. JOINTS BETWEEN THE VALVE AND THE MAIN SHALL BE FLANGED TYPE. JOINTS BETWEEN THE VALVE AND HYDRANT SHALL BE RESTRAINT OR MECHANICAL TYPE.
2. 90° BEND NOT REQUIRED IF SUFFICIENT ROOM FOR PERPENDICULAR INSTALLATION.
3. FOR CONCRETE THRUST BLOCKS, SEE DETAIL 380.
4. A FLANGE JOINT BY MECHANICAL JOINT VALVE MAY BE USED AS THE TRANSITION BETWEEN THE JOINT TYPES.
5. SEE DETAIL 362 FOR LOCATION OF HYDRANT.
6. FINISH GRADE SHALL BE GROUND LEVEL, SIDEWALK, ADJACENT SIDEWALK, PAVEMENT, ADJACENT CURB OR OTHER NEARBY OBSTRUCTION DENYING WRENCH ACCESS TO THE BOTTOM FLANGE BOLTS.



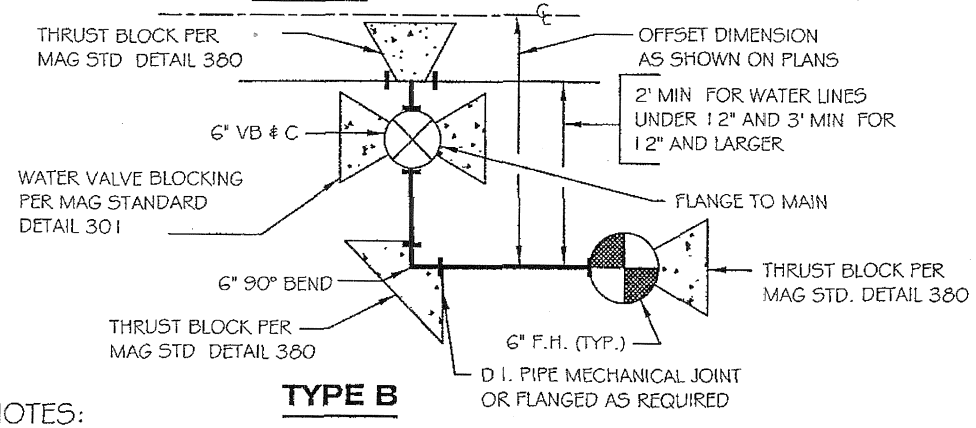




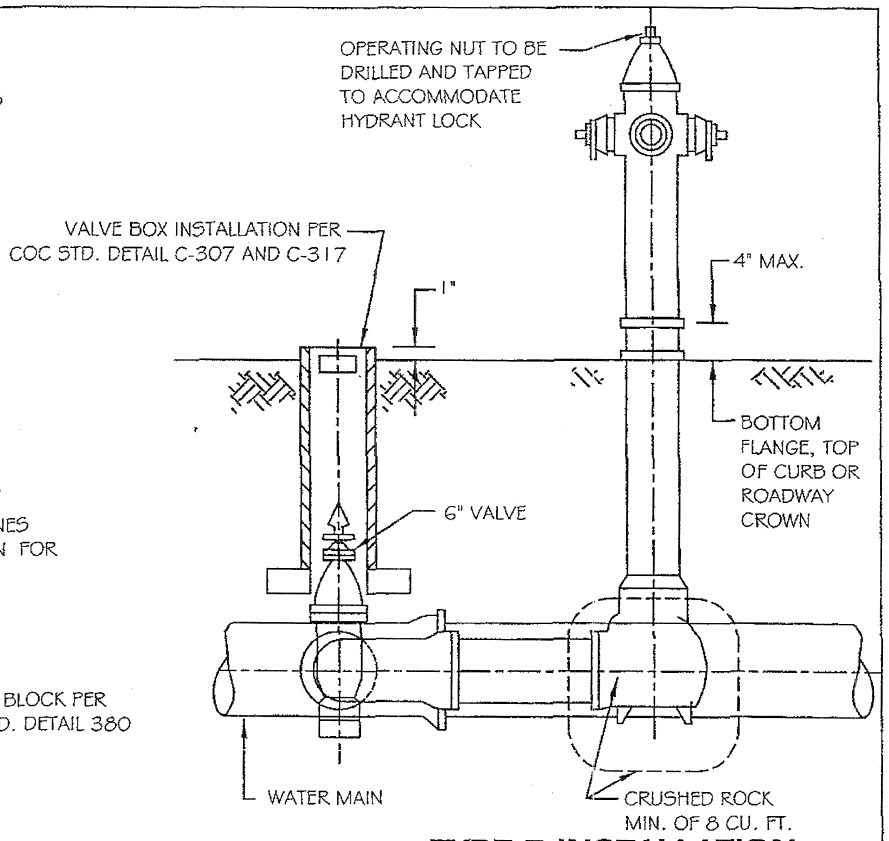
DETAIL NO.			REVISED	DETAIL NO.
360	MARICOPA ASSOCIATION of GOVERNMENTS STANDARD DETAIL ENGLISH	FIRE HYDRANT INSTALLATION		360



TYPE A



TYPE B

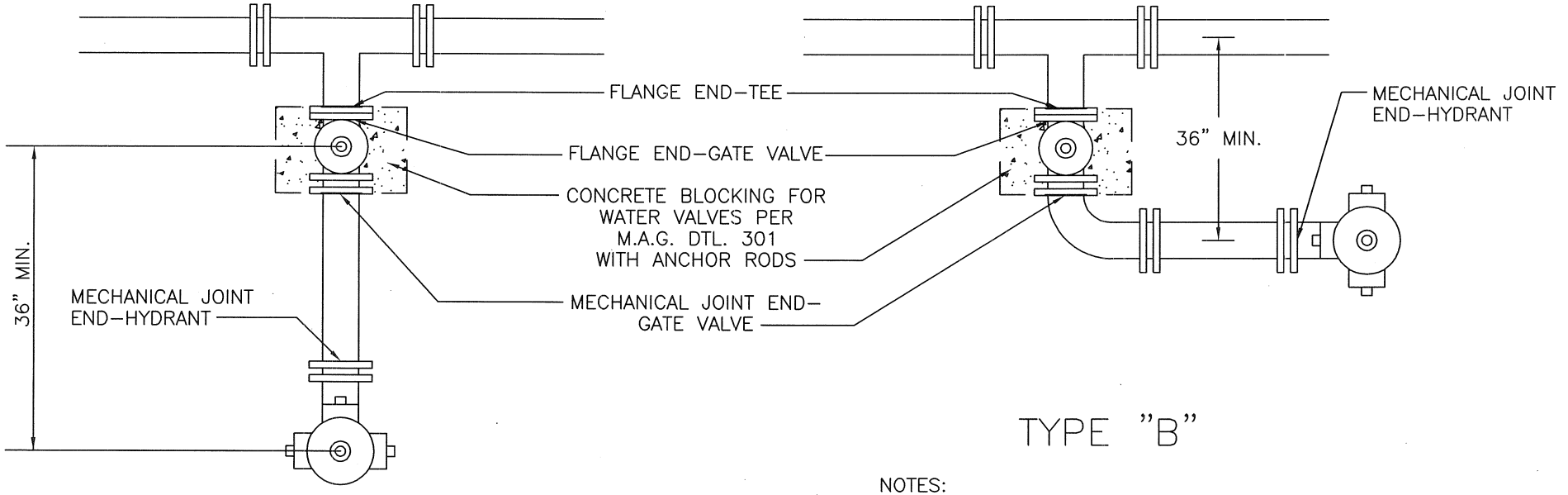


TYPE B INSTALLATION

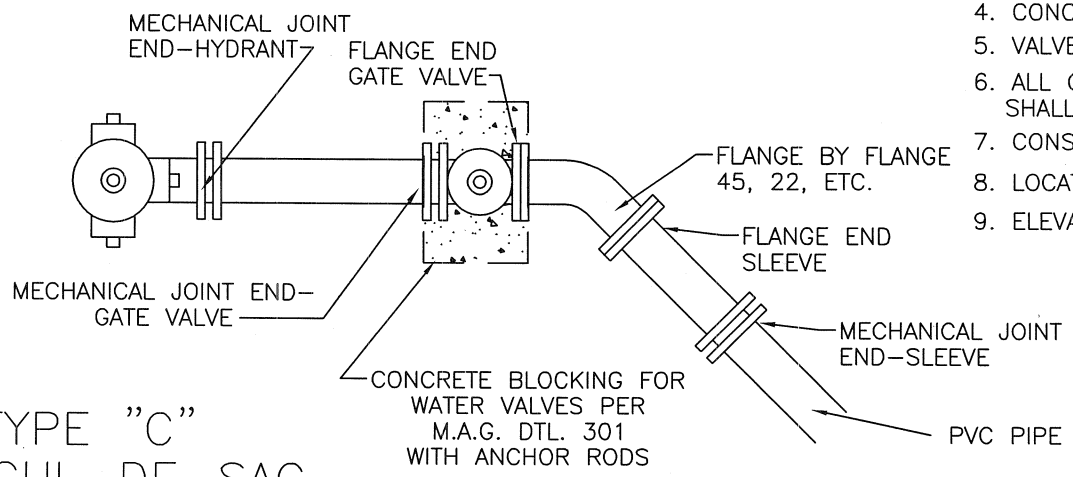
NOTES:

1. FIRE HYDRANT VALVES INCLUDING ALL FITTINGS & 45° BENDS SHALL BE RESTRAINED TO MAIN LINE TEE BY FLANGES.
2. FIRE HYDRANT WILL BE MUELLER CENTURIAN, CLOW MEDALLION OR WATEROUS PACER.
3. CONNECTIONS WILL BE 2-1/2" N.S. & 4" N.S. THREADS.
4. INSTALLATION OF HYDRANT WILL INCLUDE INSTALLATION OF REFLECTOR ON ADJACENT STREET(S) PER DETAIL C-306.
5. FIRE HYDRANT TO BE LOCATED A MIN. OF 6' BEHIND FACE OF CURB, AND 18 INCHES BEHIND SIDEWALK, RIGHT OF WAY PERMITTING, AND INSTALLED SIX FEET BEYOND CURB RETURNS FOR HYDRANTS LOCATED AT INTERSECTIONS, PER DETAIL C-305.
6. INSTALL FIRE HYDRANT LOCK PER STANDARD DETAIL C-304 OR DELIVER TO WATER DEPT. AT FINAL INSPECTION.
7. CAP CHAINS TO BE REMOVED AND THREADS GREASED WITH MANUFACTURER APPROVED HYDRANT GREASE.

C-303 REPLACES **50**	CITY OF CHANDLER STANDARD DETAIL	**FIRE HYDRANT**	APPROVED: CITY ENGINEER DATE: January 11, 2002	DETAIL NO. **C-303** NTS



TYPE "B"



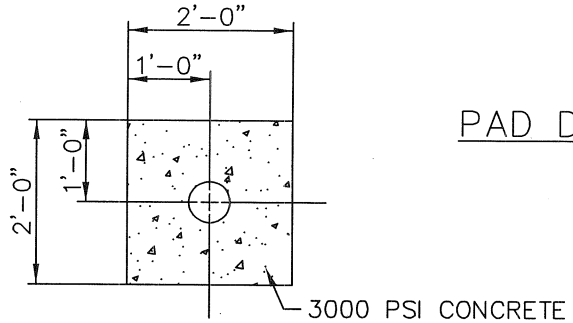
TYPE "A"

TYPE "C"
FOR CUL–DE–SAC

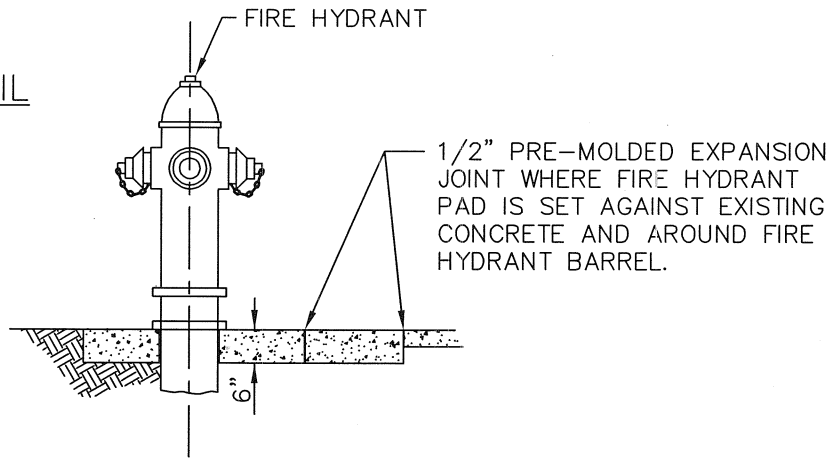
NOTES:

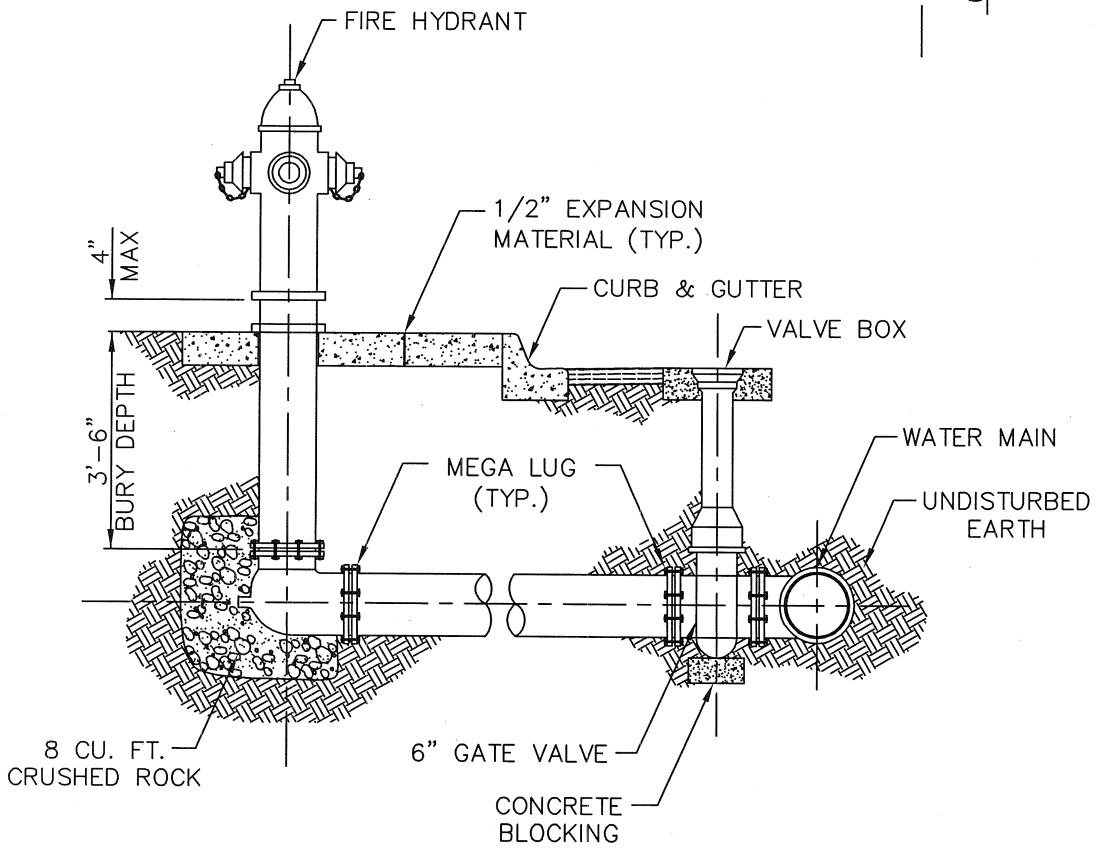
1. FIRE HYDRANT VALVES SHALL BE RESTRAINED TO MAIN LINE FITTING BY FLANGE.
2. FIRE HYDRANTS SHALL CONFORM TO T.O.G. FIRE HYDRANT SPECIFICATIONS.
3. CONNECITONS SHALL BE 2 1/2" N.S. & 4 1/2" N.S. THREADS.
4. CONCRETE THRUST BLOCKS SHALL BE PER M.A.G. DTL. 380.
5. VALVE BOX INSTALL PER M.A.G. DTL. 391–1–C.
6. ALL CONNECTIONS FROM THE MAIN LINE FITTING TO THE HYDRANT SHALL BE DUCTILE IRON.
7. CONSTRUCT DRAIN PIT PER M.A.G. DTL. 360.
8. LOCATE FIRE HYDRANT PER M.A.G. DETAIL 362
9. ELEVATION OF FIRE HYDRANT SHALL BE PER M.A.G. DETAIL 360

DETAIL NO. 60	TOWN OF GILBERT STANDARD DETAIL	FIRE HYDRANT	REVISED 1/2005	DETAIL NO. 60



PAD DETAIL





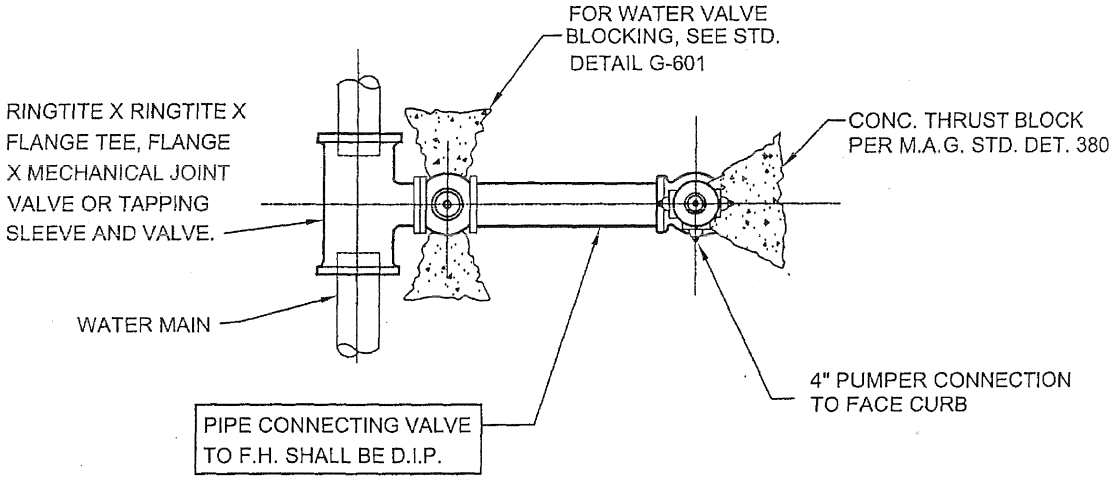
DETAIL NO. 60A	TOWN OF GILBERT STANDARD DETAIL	FIRE HYDRANT DETAIL	REVISED 1/2005	DETAIL NO. 60A

STANDARD DETAIL G-660

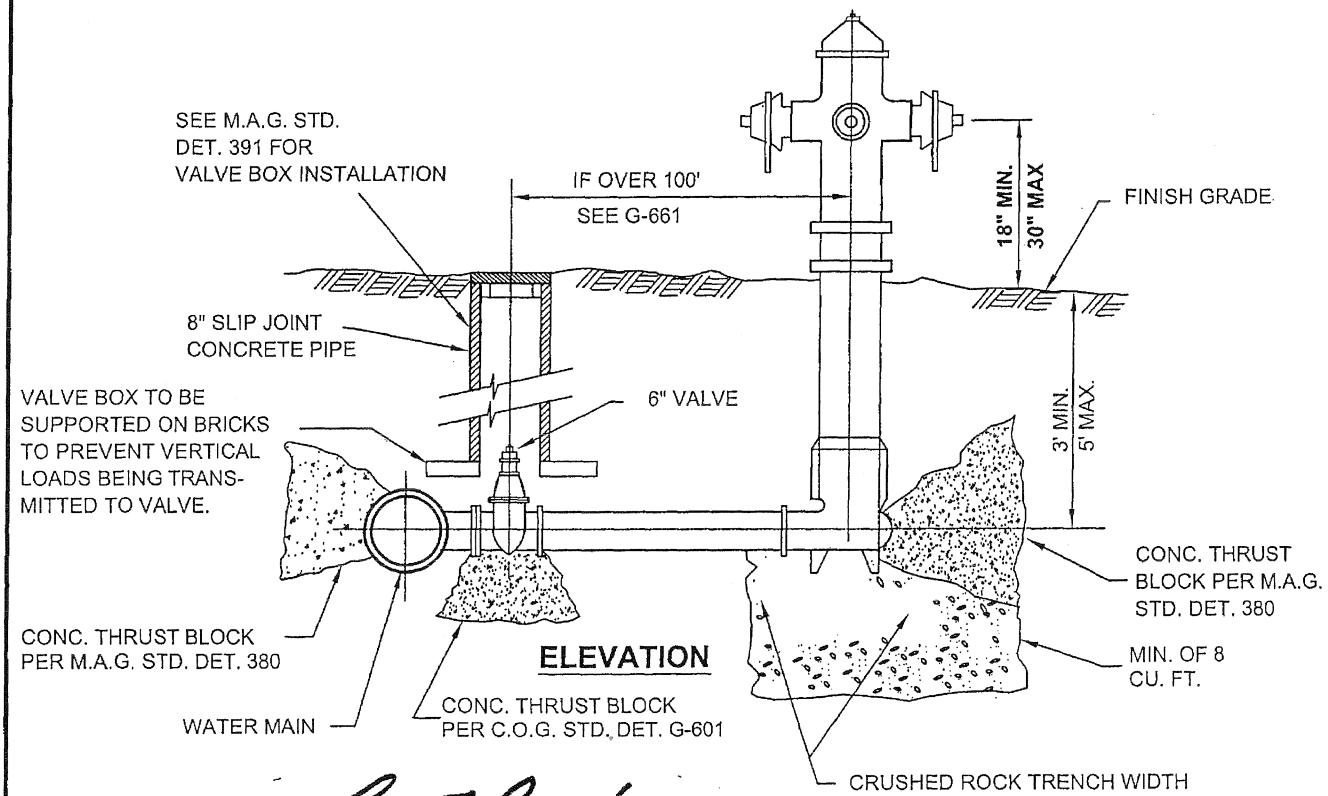
CITY OF GLENDALE
ENGINEERING

GLENDALE

METHOD OF SETTING FIRE HYDRANT



PLAN



ELEVATION

APPROVED BY: Harry J Broyles
CITY ENGINEER

6/28/02
DATE

REVISED : JUNE 2002

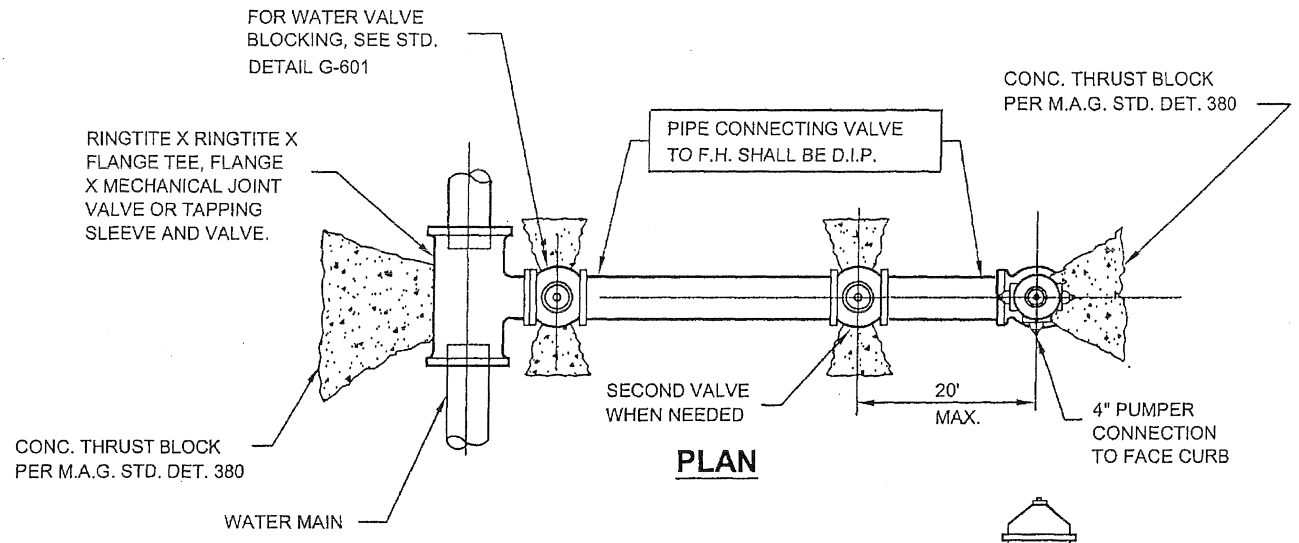
PREVIOUS :

STANDARD DETAIL G-661

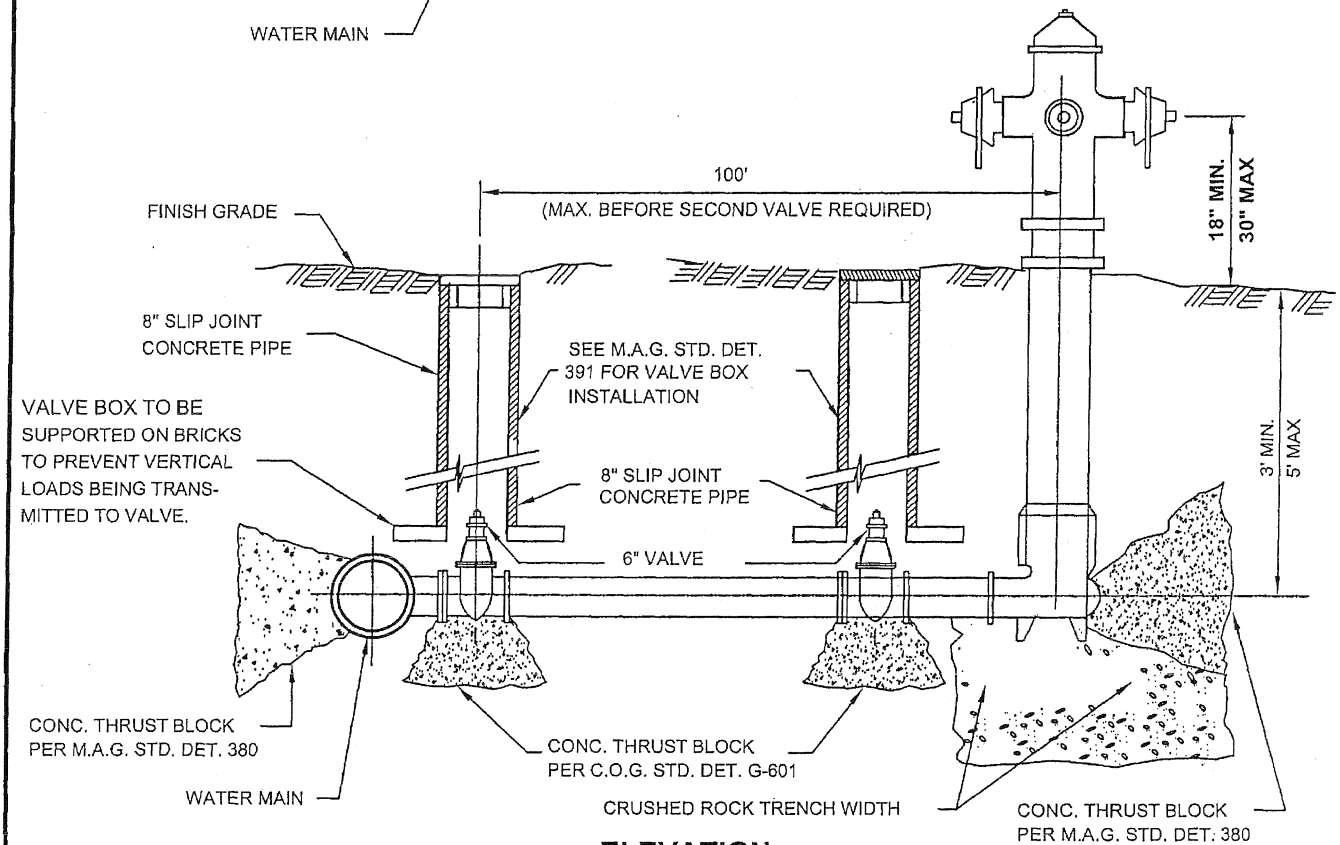
CITY OF GLENDALE
ENGINEERING

GLENDALE

METHOD OF SETTING FIRE HYDRANT OVER 100-FEET FROM MAIN



PLAN



ELEVATION

APPROVED BY: Larry J Broyles
CITY ENGINEER

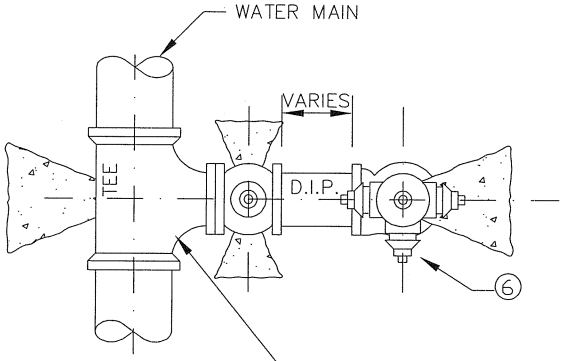
6/28/02
DATE

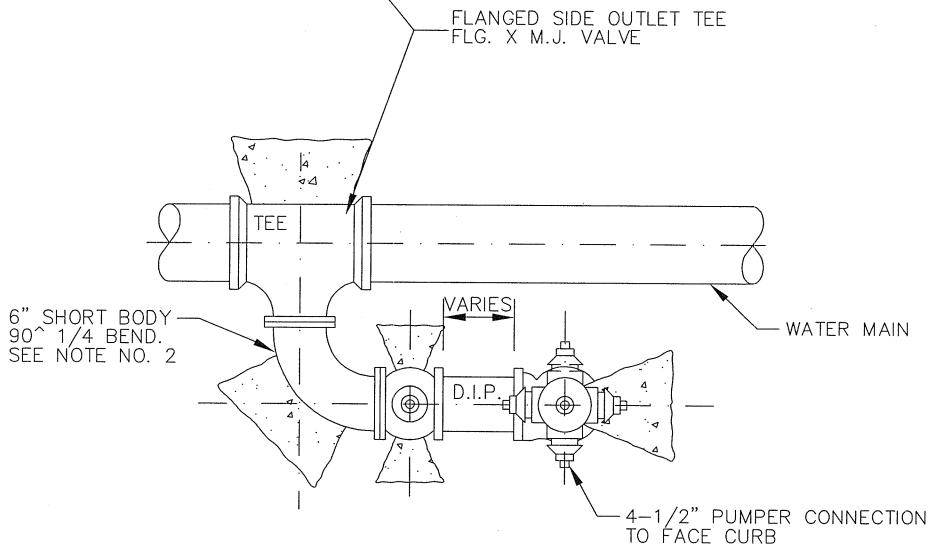
REVISED : JUNE 2002

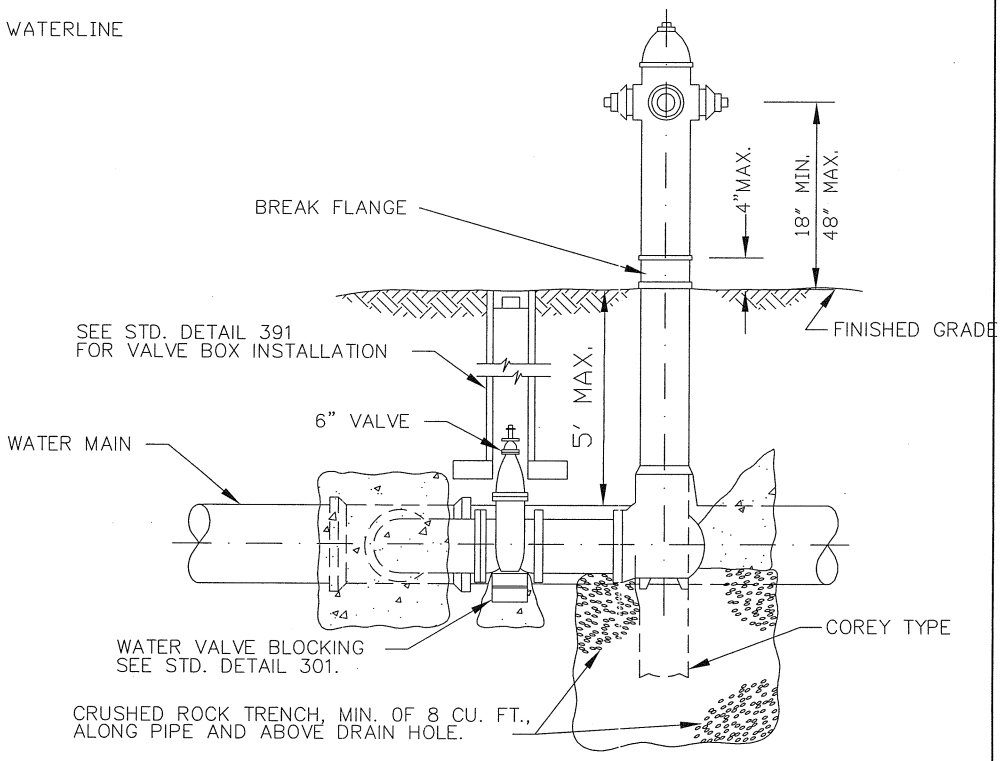
PREVIOUS :

NOTES:

1. ALL JOINTS BETWEEN THE VALVE TO THE MAIN SHALL BE FLANGED TYPE. JOINTS BETWEEN THE VALVE AND HYDRANT SHALL BE FLANGED OR MECHANICAL TYPE.
2. 90^ BEND NOT REQUIRED IF SUFFICIENT ROOM FOR PERPENDICULAR INSTALLATION.
3. FOR CONCRETE THRUST BLOCKS SEE STD. DETAIL 380.
4. A FLANGE JOINT BY MECHANICAL JOINT VALVE MAY BE USED AS THE TRANSITION BETWEEN THE JOINT TYPES.
5. SEE STANDARD DETAIL 362 FOR LOCATION OF HYDRANT.
6. RED 4" MAINLINE
   WHITE 6" WATERLINE
   GREEN 8" OR GREATER WATERLINE







DETAIL NO. G-3330	CITY OF GOODYEAR STANDARD DETAIL	APPROVED BY: Goodyear Standards and Policies Committee 7/97	FIRE HYDRANT INSTALLATION	DETAIL NO. G-3330

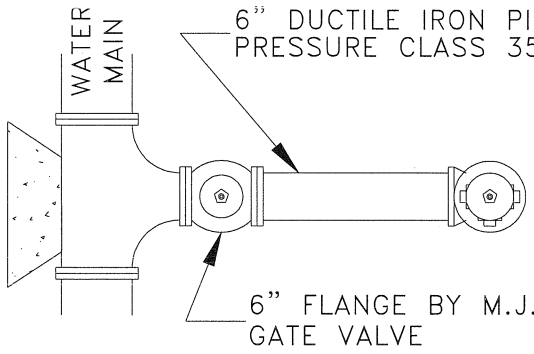
PEORIA DETAIL 360

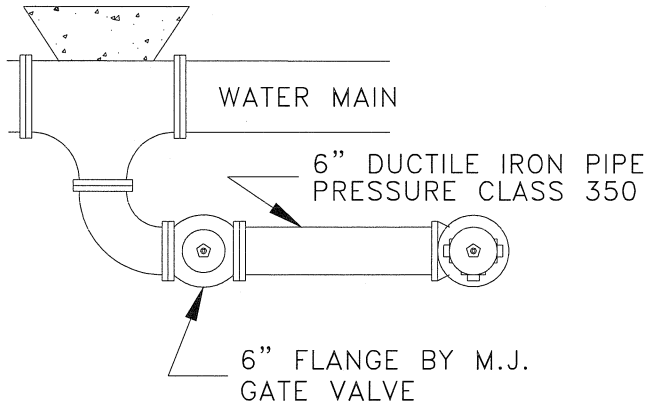
FIRE HYDRANT INSTALLATION

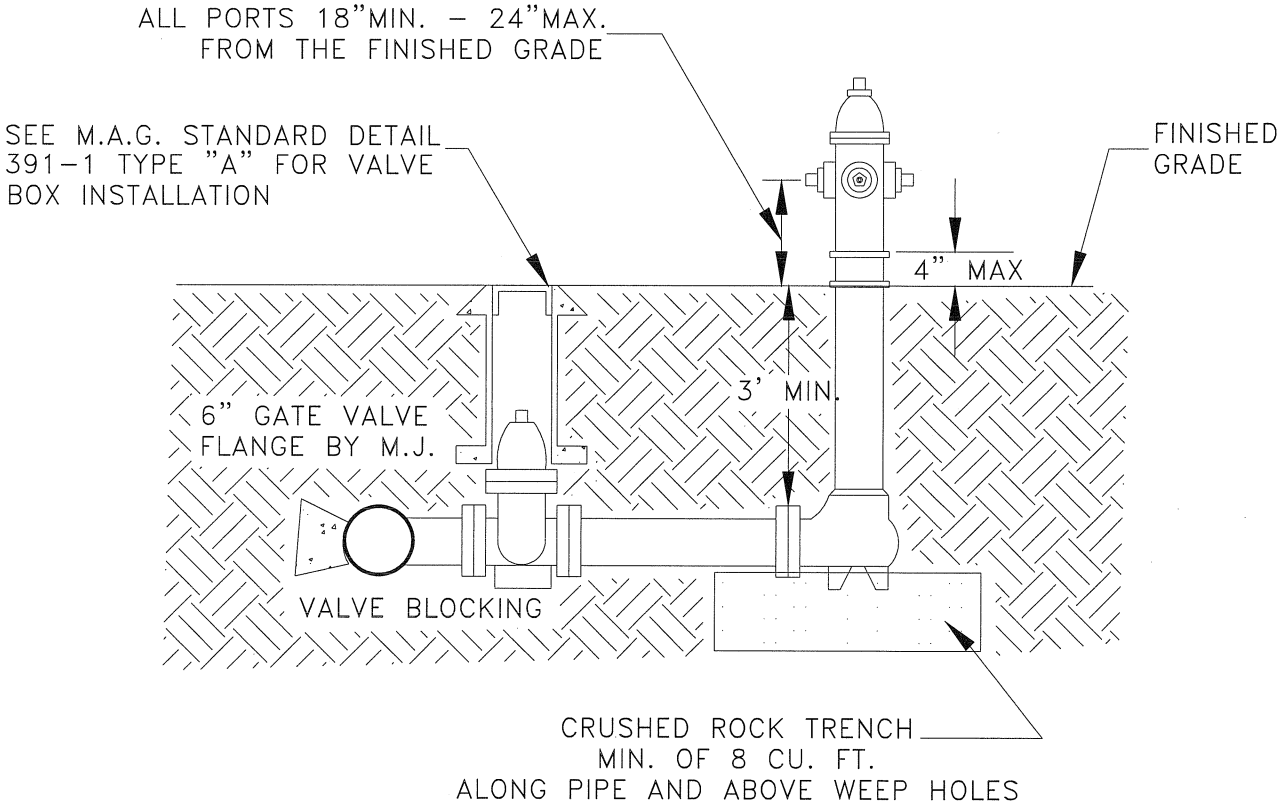
APPROVALS:

CITY ENGINEER DATE

UTILITIES DIRECTOR DATE







1. ALL JOINTS IN THE HYDRANT RUN OUT ARE TO BE MEG–A–LUG, OR EQUAL.
2. APPROVED HYDRANTS INCLUDE: A.V.K., CLOW, KENNEDY MODEL K81, MULLER, AND WATEROUS.
3. THE 6" GATE VALVE SHALL BE FLANGED BY MECHANICAL JOINT.
4. NO VALVES ARE TO BE IN THE CONCRETE.
5. THE 4 1/2" PORT OF THE FIRE HYDRANT IS TO BE INSTALLED FACING THE STREET.

I:\GUIDE\DETAILS\360.DWG

07/15/98

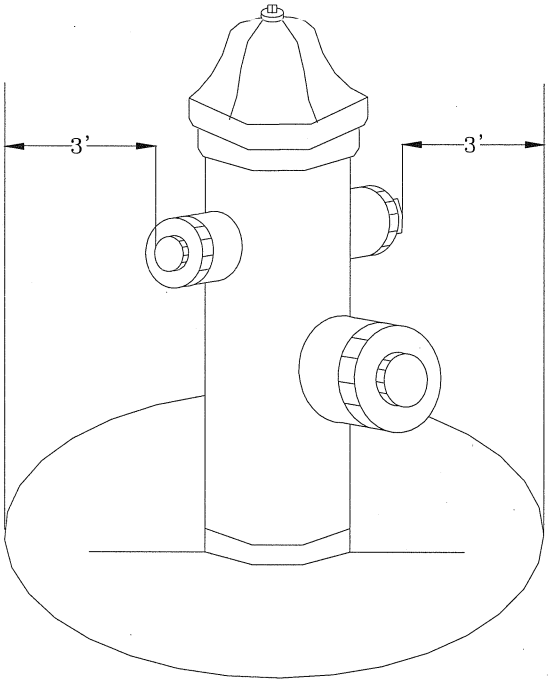
PEORIA DETAIL

HYDRANT/FDC CLEARANCES

APPROVALS:

CITY ENGINEER DATE

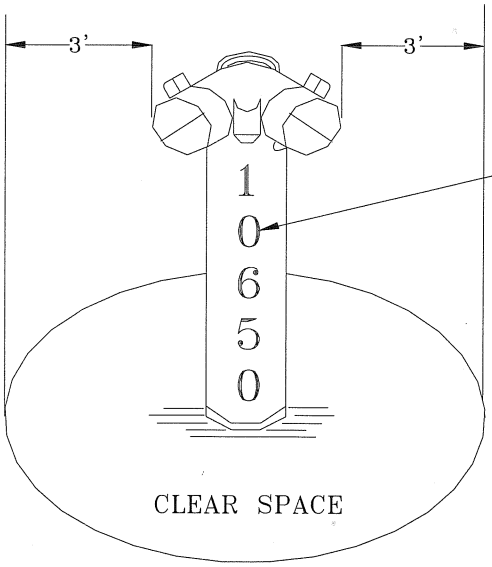
FIRE MARSHAL DATE



CITY OWNED HYDRANTS SHALL BE PAINTED YELLOW.

PRIVATELY OWNED HYDRANTS SHALL BE PAINTED RED WITH OWNER'S INITIALS STENCILED ON THE BARREL. MIN 2" HIGH WHITE REFLECTIVE LETTERING.

DO NOT PLANT ANY TREES OR SHRUBS THAT WILL ENCROACH ON THE CLEAR SPACE INDICATED, WHEN THE PLANTS OR TREES ARE MATURE.



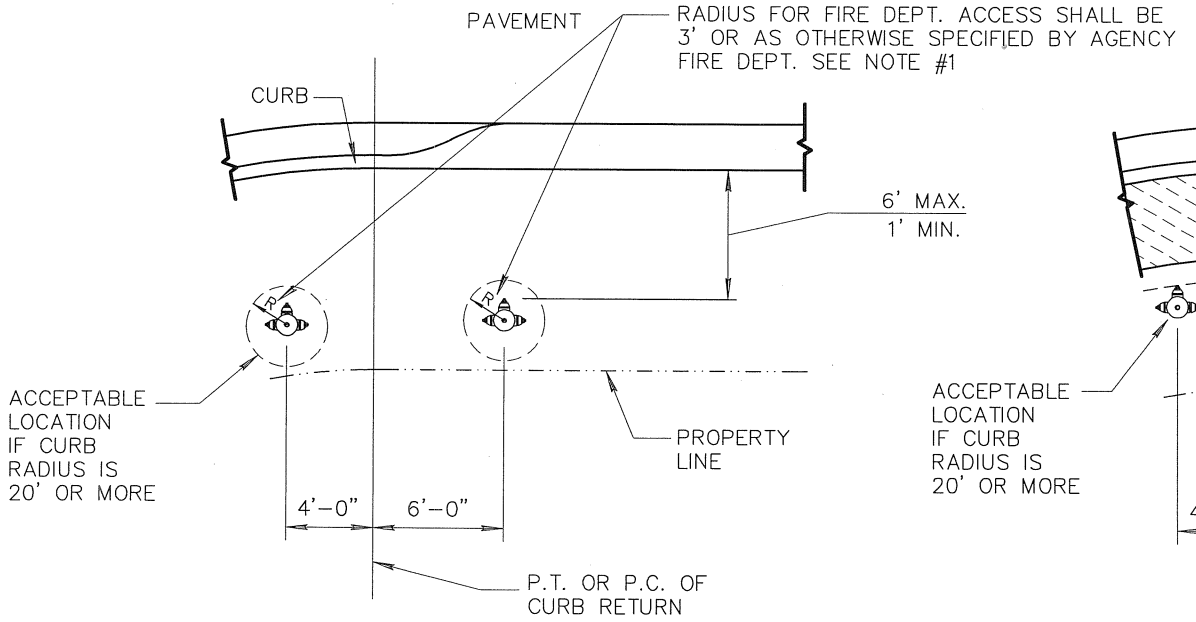
STANDPIPE TO BE PAINTED RED WITH 2" HIGH WHITE REFLECTIVE NUMBERS

I:\GUIDE\DETAILS\###.DWG

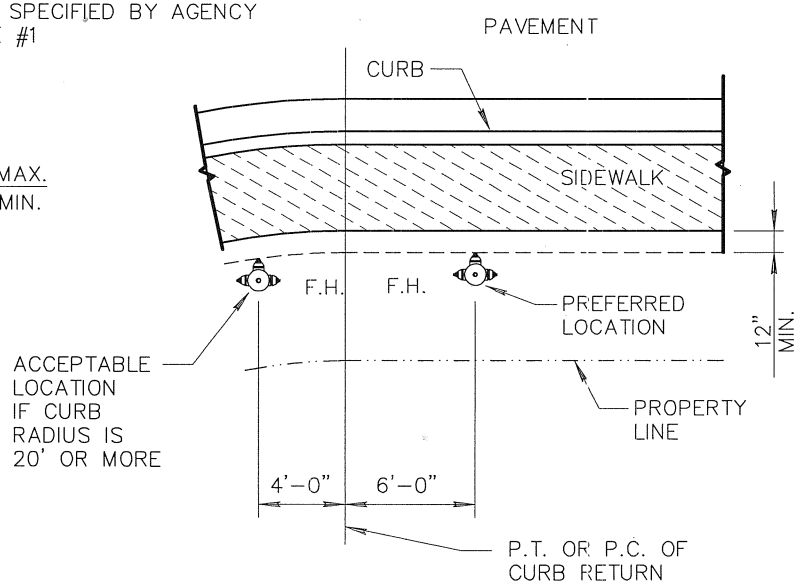
11/30/01

NOTES:

1. OBSTRUCTIONS SUCH AS UTILITY POLES, STREET SIGNS, IRRIGATION BOXES, FENCES, ETC., MUST NOT BE PLACED BETWEEN CURB AND HYDRANT AND WITHIN THE RADIUS FOR FIRE DEPT. ACCESS.
2. DIMENSIONS SHOWN ON CONSTRUCTION DRAWINGS SUPERSEDE LOCATIONS SHOWN HERE.
3. ON LOCATIONS IN MIDBLOCK, THE FIRE HYDRANT WILL BE ALIGNED WITH A PROPERTY LINE.

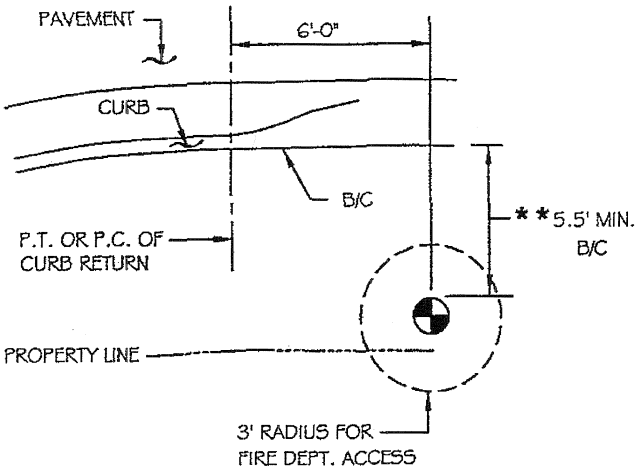


PARKWAY AREA OR NO SIDEWALK

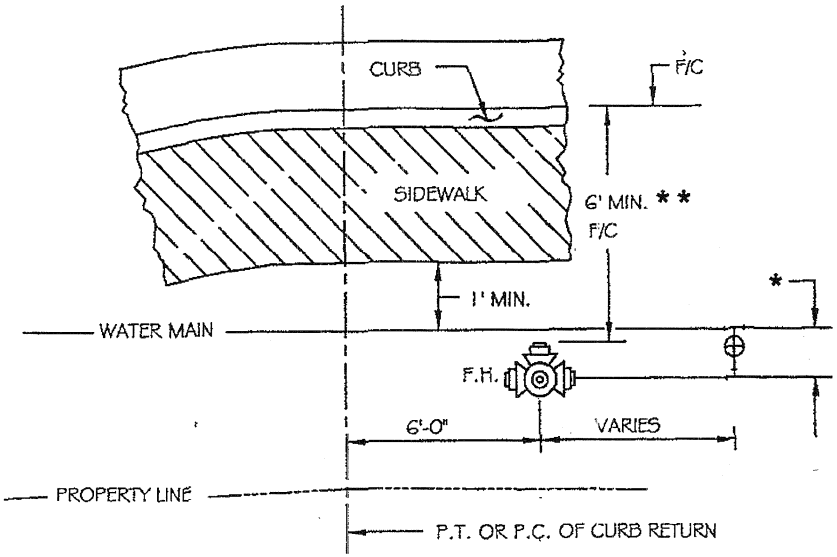


AREA WITH SIDEWALK

DETAIL NO.				REVISED	DETAIL NO.
362	MARICOPA ASSOCIATION of GOVERNMENTS STANDARD DETAIL ENGLISH	LOCATIONS FOR NEW FIRE HYDRANTS			362



PARKWAY AREA, NO SIDEWALK



AREA WITH SIDEWALK

NOTES:

1. OBSTRUCTIONS SUCH AS UTILITY POLES, STREET SIGNS, IRRIGATION BOXES, FENCES, ETC., MUST NOT BE PLACED BETWEEN CURB AND HYDRANT.
2. * DIMENSION PER COC STANDARD DETAIL C-303.
3. DIMENSIONS SHOWN ON CONSTRUCTION DRAWINGS SUPERSEDE LOCATIONS SHOWN HERE.
4. ON LOCATIONS IN MIDBLOCK, THE FIRE HYDRANT WILL BE ALIGNED WITH A PROPERTY LINE AND 6' MINIMUM FROM DRIVEWAYS.
5. COC STANDARD DETAIL C-303, TYPE B INSTALLATION SHOWN.
6. ALL FIRE HYDRANTS INSTALLED PER STANDARD DETAIL C-303 WILL BE LOCATED IN ACCORDANCE WITH THIS DETAIL.
7. ** MINIMUM DIMENSION MUST BE SIDEWALK WIDTH PLUS ONE (1) FOOT OR SIX (6) FEET FROM FACE OF CURB, WHICHEVER IS GREATER.
8. IN INDUSTRIAL/COMMERCIAL ZONES A MINIMUM OF 6' FROM DRIVEWAYS MUST BE MAINTAINED WITH VALVE INSTALLED AWAY FROM DRIVEWAY.
9. BOTTOM FLANGE OF FIRE HYDRANT TO BE 2" ABOVE SIDEWALK.

C-305 **REPLACES** **102**	CITY OF CHANDLER STANDARD DETAIL	**LOCATIONS FOR NEW FIRE HYDRANT**	APPROVED: _____ CITY ENGINEER DATE: 11-19-99	DETAIL NO. **C-305** NTS

STANDARD DETAIL G-662

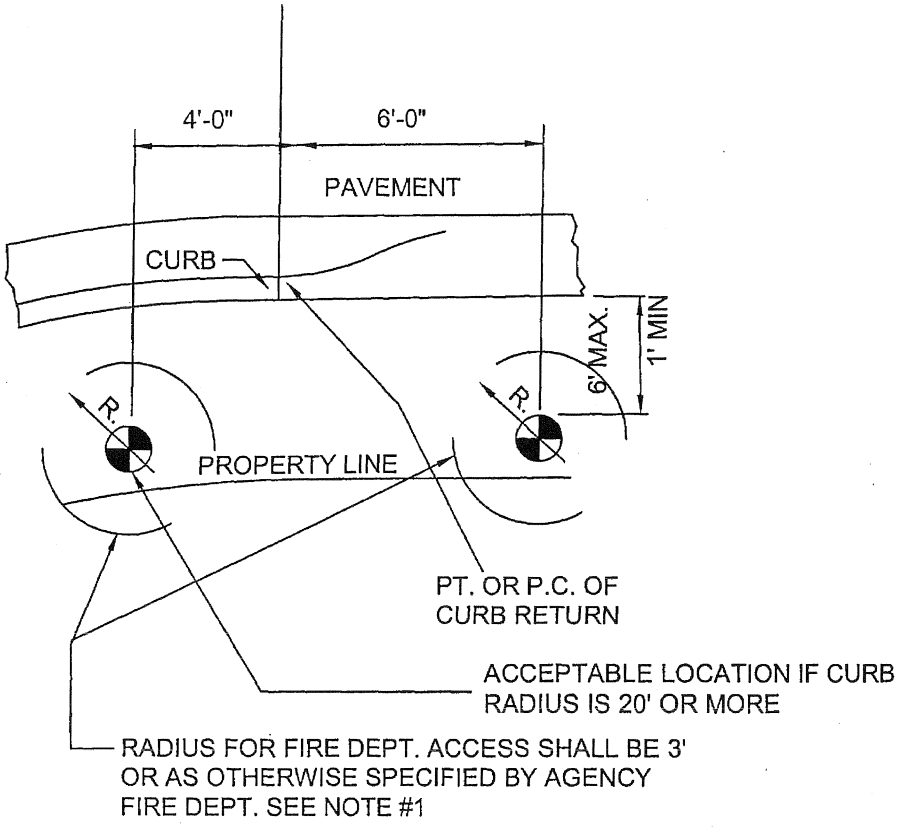
CITY OF GLENDALE
FIRE

LOCATION FOR NEW FIRE HYDRANTS

GLENDALE

NOTES:

1. NO OBSTRUCTION WITHIN 3' OF HYDRANT. OBSTRUCTIONS SUCH AS UTILITY POLES, STREET SIGNS, IRRIGATION BOXES, FENCES, ETC., MUST NOT BE PLACED BETWEEN CURB AND HYDRANT AND WITHIN THE RADIUS FOR FIRE DEPT. ACCESS. ANY DEVIATIONS REQUIRE GLENDALE FIRE DEPARTMENT APPROVAL. NO OBSTRUCTION WITHIN 3' OF HYDRANT.
2. ANY DEVIATION FROM THIS DETAIL SHALL REQUIRE GFD APPROVAL.
3. ON LOCATIONS IN MIDBLOCK, THE FIRE HYDRANTS SHALL BE SET A MAXIMUM 6' BACK FROM CURB OR EDGE OF FIRE LANE. (SEE DETAIL)
4. REFER TO DETAIL G-650 FOR FIRE HYDRANT MARKER LOCATIONS.



AREA WITHOUT SIDEWALK

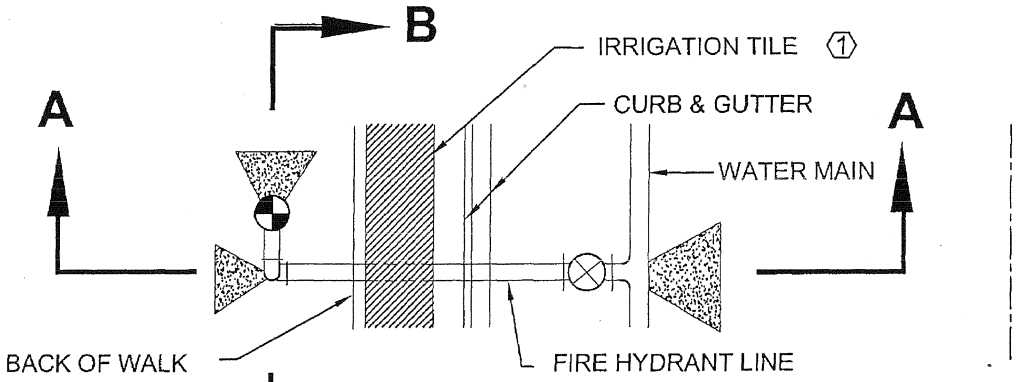
APPROVED BY: _____ 11-26-01
FIRE MARSHALL DATE

REVISED: JULY 2001

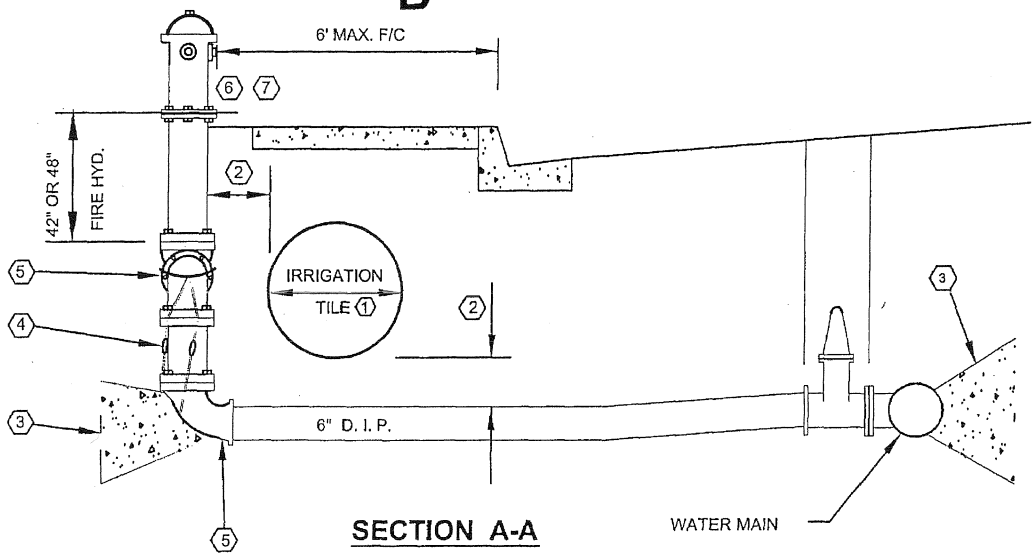
STANDARD DETAIL G-665

CITY OF GLENDALE
ENGINEERING

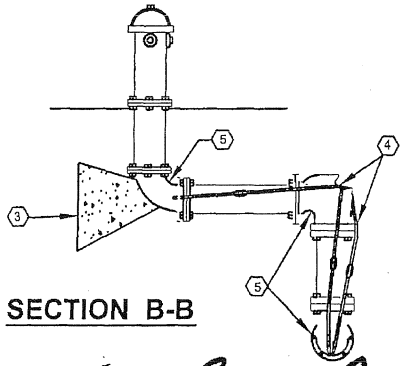
FIRE HYDRANT INSTALLATION WITH CONFLICTING UTILITY



PLAN



SECTION A-A



SECTION B-B

NOTES:

(1) OR OTHER UTILITY.
(2) 1' MIN. CITY OF GLENDALE REQUIREMENT OR INDIVIDUAL UTILITIES REQUIREMENT, WHICHEVER IS GREATER.
(3) CONCRETE THRUST BLOCKS PER MAG STD. DET. 380.
(4) TIE RODS PER MAG STD. DET. 302.
(5) MECHANICAL JOINT 90° BENDS WITH TIE RODS.
(6) FIRE HYDRANT SHALL COMPLETELY CLEAR THE BACK OF SIDEWALK.
(7) CENTER OF NOZZLES SHALL BE **18" MIN.** AND **30" MAX.** FROM FINISH GRADE.

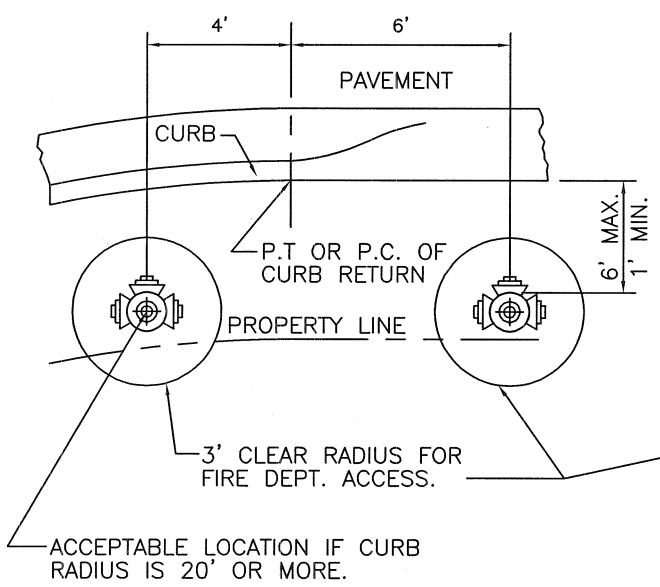
APPROVED BY: Larry J. Broyles
CITY ENGINEER

6/28/02
DATE

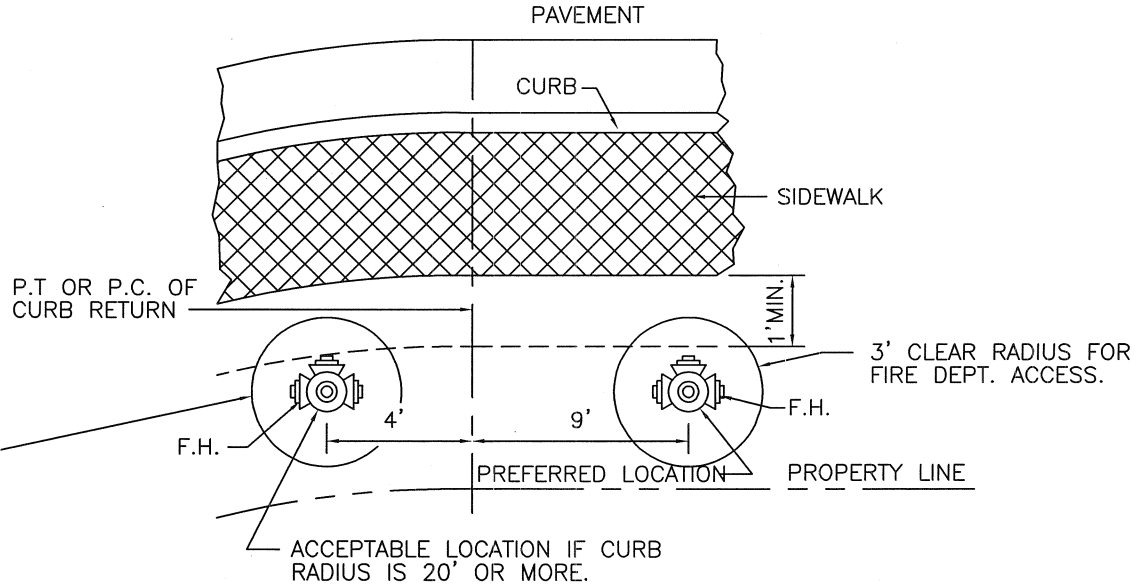
REVISED : JUNE 2002

NOTES:

1. OBSTRUCTIONS SUCH AS UTILITY POLES, STREET SIGNS, IRRIGATION BOXES, FENCES, ETC., MUST NOT BE PLACED BETWEEN CURB AND HYDRANT.
2. DIMENSIONS SHOWN ON CONSTRUCTION DRAWINGS SUPERSEDE LOCATIONS SHOWN HERE.
3. ON LOCATIONS IN MIDBLOCK, THE FIRE HYDRANT WILL BE ALIGNED WITH A PROPERTY LINE.

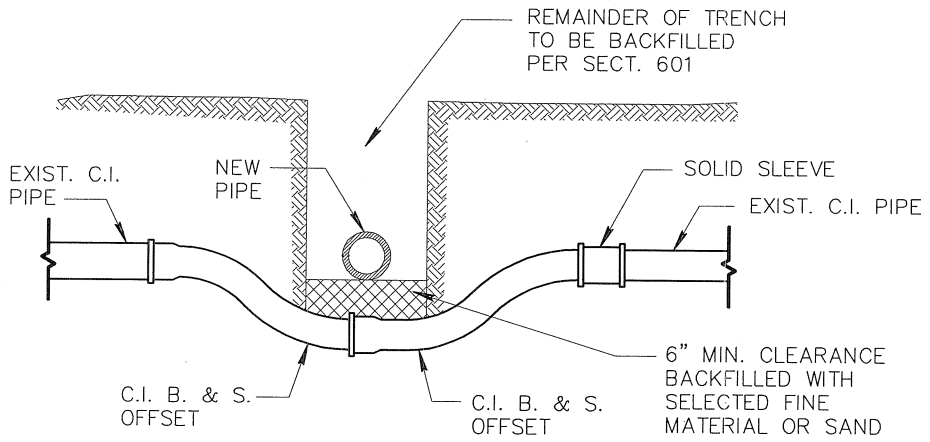


LANDSCAPE AREA WITH PARKWAY
OR NO SIDEWALK ADJACENT TO CURB

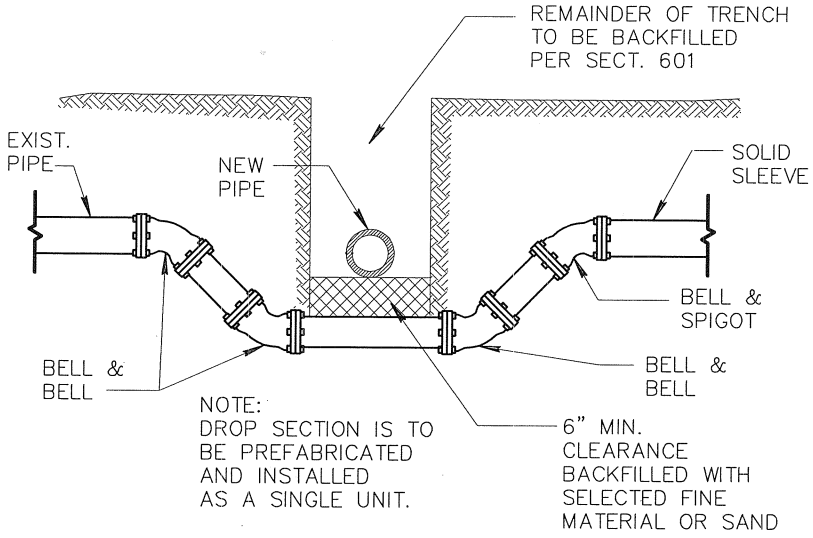


AREA WITH SIDEWALK ADJACENT TO CURB

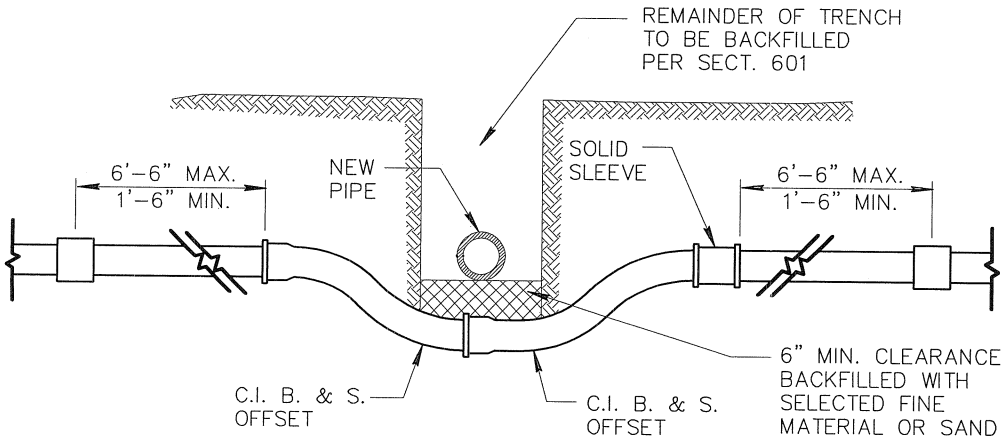
DETAIL NO.	City of Phoenix STANDARD DETAIL	FIRE HYDRANT LOCATION	APPROVED	DETAIL NO.
P1362			Mario Saldamando CITY ENGINEER — 07-19-04 DATE	P1362



CAST IRON



CAST IRON MECHANICAL JOINT

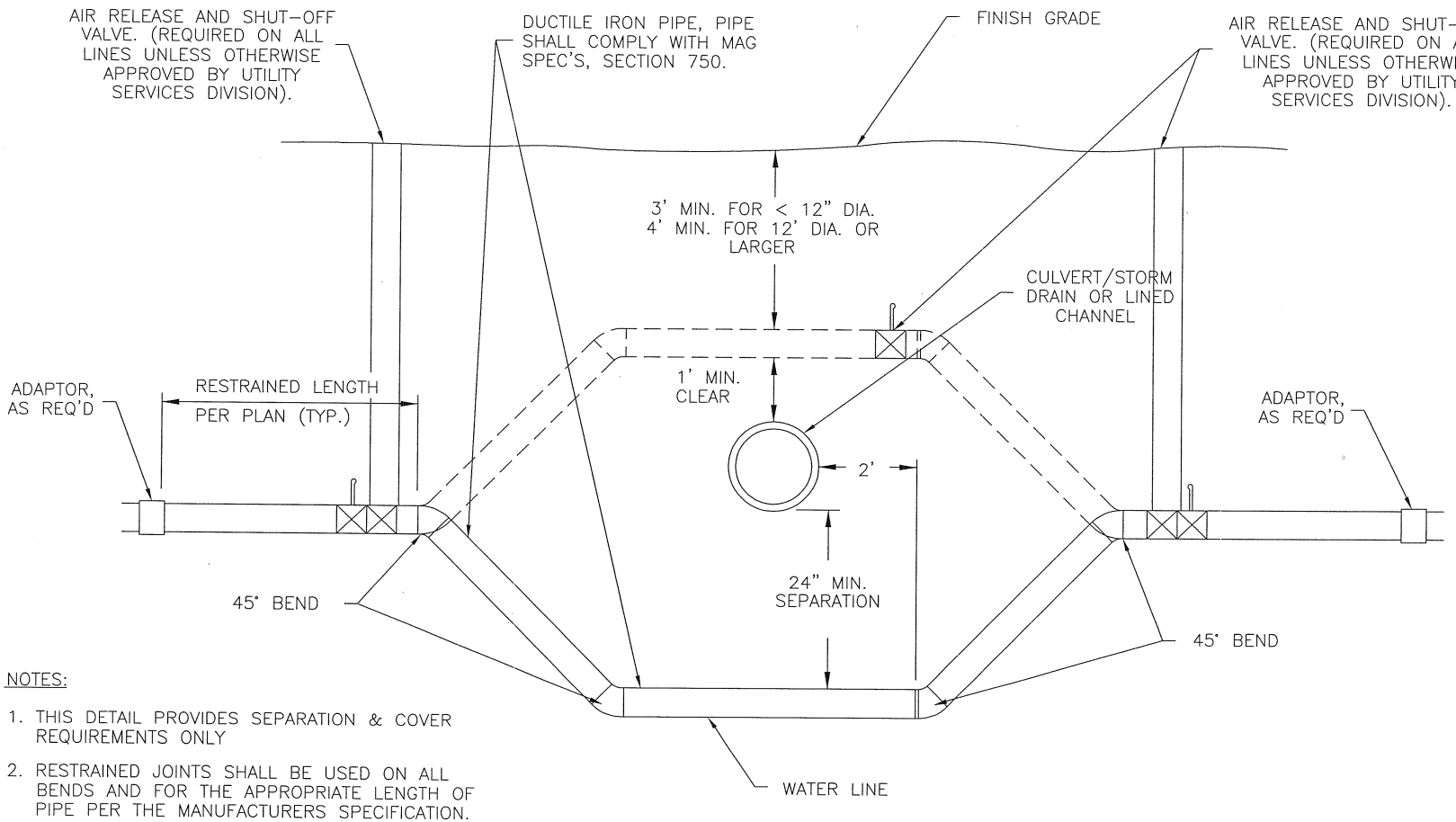


ASBESTOS CEMENT

NOTES:

1. THIS DETAIL COVERS MOVING OF WATER MAINS 2" TO 12" ONLY.
2. THRUST BLOCKING AS PER DET. 380 & 381.
3. IF OFFSET IS TO GO OVER OBSTRUCTION, JOINT RESTRAINTS MUST BE USED.
4. PIPE IS TO BE CAST IRON OR DUCTILE IRON.

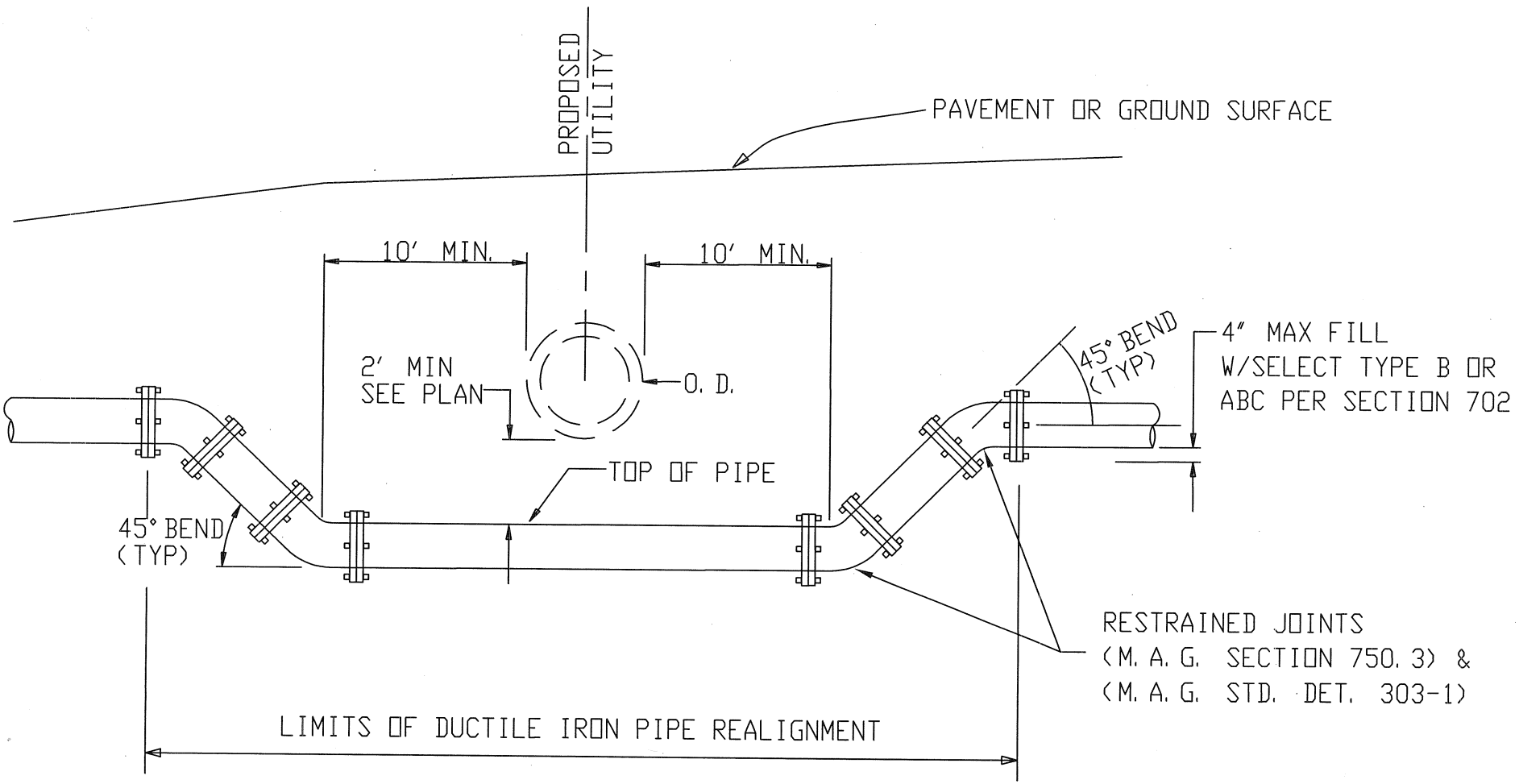
DETAIL NO.			REVISED	DETAIL NO.
370	MARICOPA ASSOCIATION of GOVERNMENTS STANDARD DETAIL ENGLISH	VERTICAL REALIGNMENT OF WATER MAINS		370



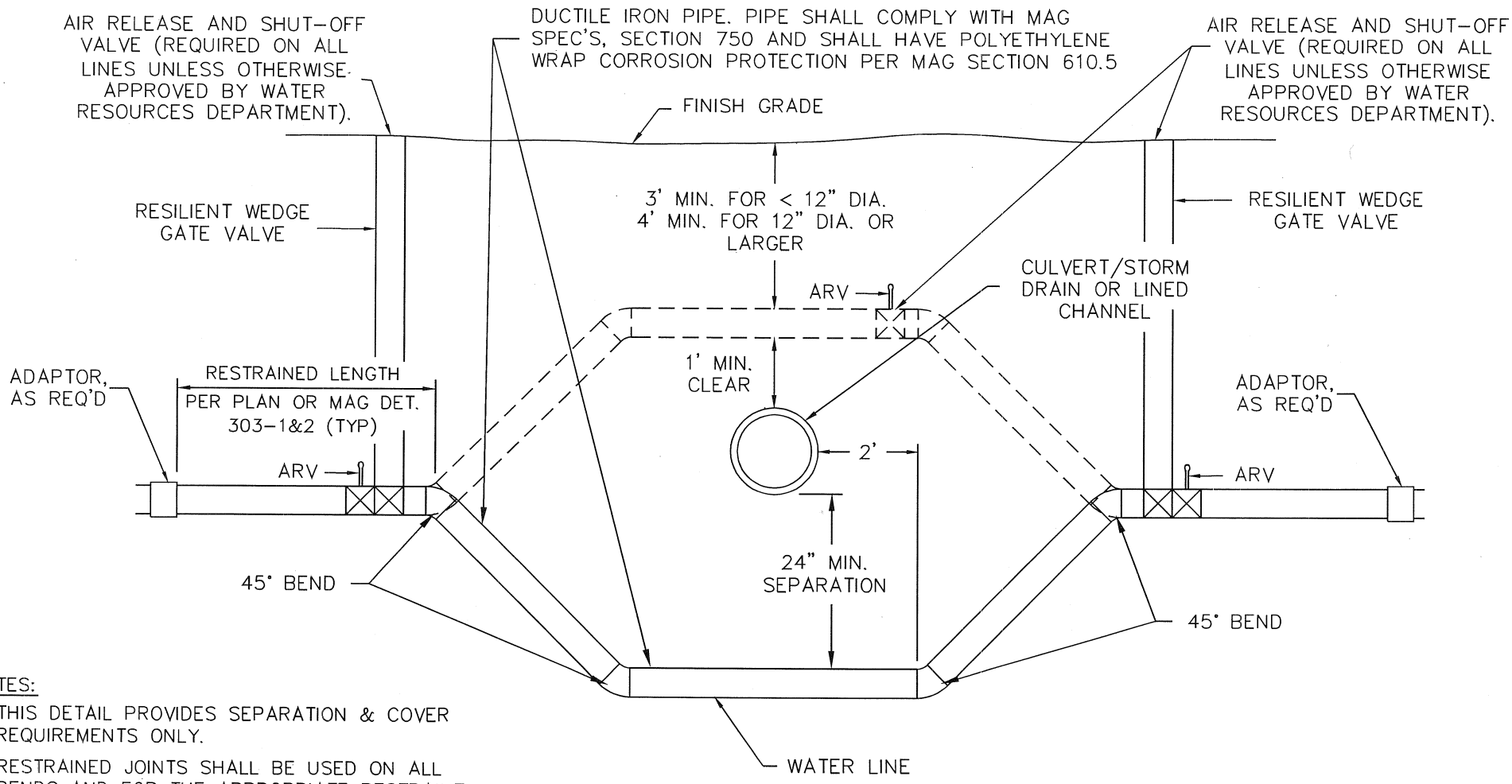
NOTES:

1. THIS DETAIL PROVIDES SEPARATION & COVER REQUIREMENTS ONLY
2. RESTRAINED JOINTS SHALL BE USED ON ALL BENDS AND FOR THE APPROPRIATE LENGTH OF PIPE PER THE MANUFACTURERS SPECIFICATION.

DETAIL NO. G-3301	CITY OF GOODYEAR STANDARD DETAIL	APPROVED BY: Goodyear Standards and Policies Committee 7/97	VERTICAL REALIGNMENT OF WATER MAINS	DETAIL NO. G-3301



DETAIL NO.	City of Phoenix STANDARD DETAIL	VERTICAL REALIGNMENT OF WATER LINE	APPROVED Mario Saddamando CITY ENGINEER 08-08-03 DATE	DETAIL NO.
P1370				P1370



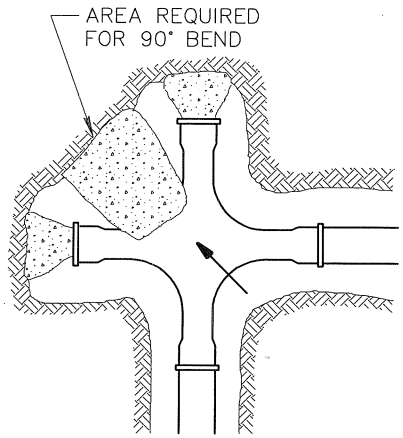
REVISED 2/27/02

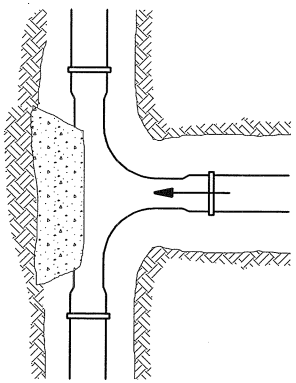
NOTES:

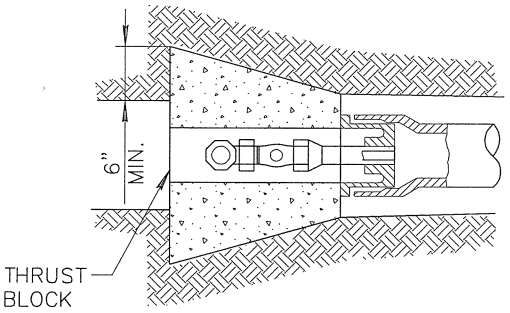
1. THIS DETAIL PROVIDES SEPARATION & COVER REQUIREMENTS ONLY.
2. RESTRAINED JOINTS SHALL BE USED ON ALL BENDS AND FOR THE APPROPRIATE RESTRAINT LENGTH OF PIPE PER THE MANUFACTURERS SPECIFICATION.

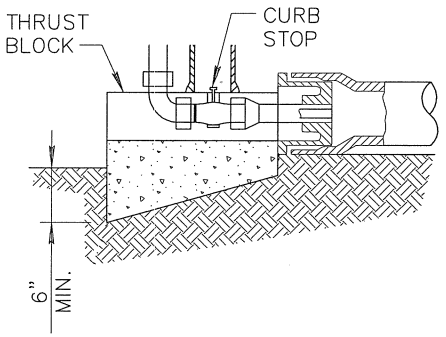
DETAIL NO. 2370	City of Scottsdale Standard Details	APPROVED BY: Scottsdale Standards & Specifications Committee	VERTICAL REALIGNMENT OF WATER MAINS	DETAIL NO. 2370

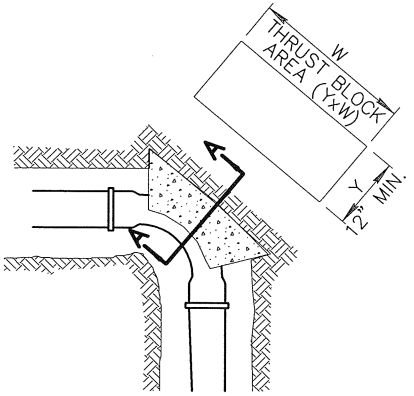
TYPICAL LOCATIONS OF THRUST BLOCKS

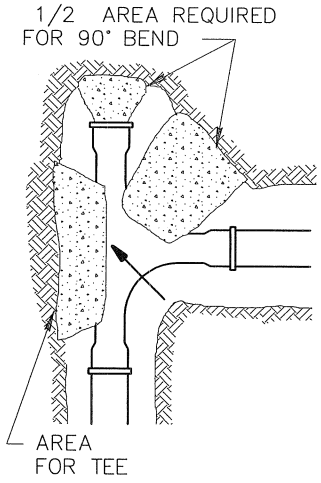


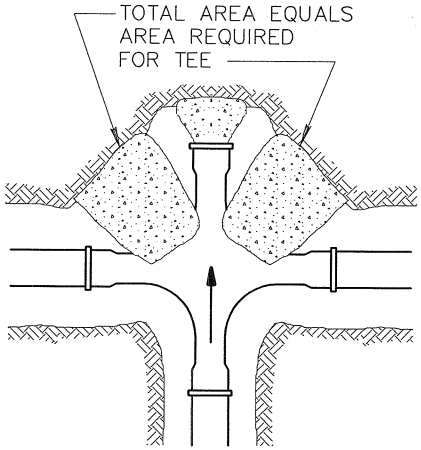


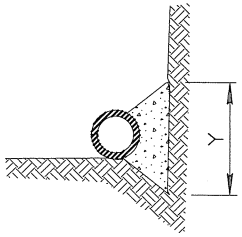












SECTION A–A

NOTES:

1. TABLE IS BASED ON 200 P.S.I. TEST PRESSURE AND 3,000 LBS/SQ FT. SOIL. IF CONDITIONS ARE FOUND TO INDICATE SOIL BEARING IS LESS, THE AREAS SHALL BE INCREASED ACCORDINGLY.
2. AREAS FOR PIPES LARGER THAN 16" SHALL BE CALCULATED FOR EACH PROJECT.
3. FORM ALL NON--BEARING VERTICAL SURFACES.
4. THRUST BLOCKS ARE TO EXTEND TO UNDISTURBED GROUND. CONCRETE TO BE CLASS 'C', SECT. 725.

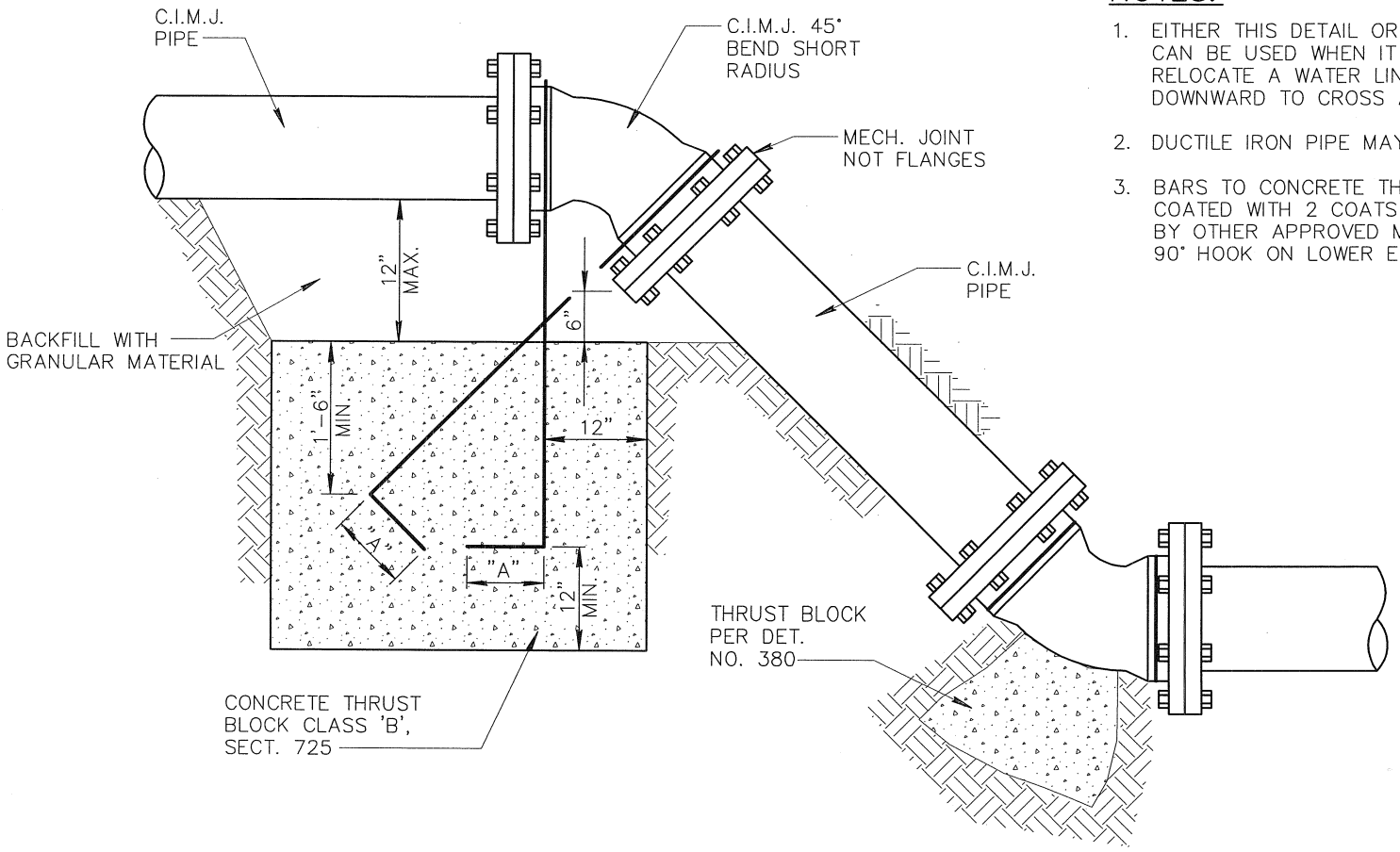
MINIMUM THRUST BLOCK AREA REQUIRED (YxW) (SQ. FT.)

PIPE SIZE	WATER PIPE	
	TEE, DEAD END, 90° BEND	45° & 22 1/2° BENDS
4" OR LESS	3	3
6"	4	3
8"	6	3
10"	10	5
12"	14	7
16"	24	12

DETAIL NO.			REVISED	DETAIL NO.
380	MARICOPA ASSOCIATION of GOVERNMENTS STANDARD DETAIL ENGLISH	THRUST BLOCKS FOR WATER LINES		380

PIPE SIZE	MIN BAR SIZE	"A"–DIMENSION HOOK	MIN. * BLOCK DIM.
6"	#6	6"	3' x 3' x 3'
8"	#6	9"	4' x 4' x 2.5'
12"	#8	9"	4' x 4' x 5'

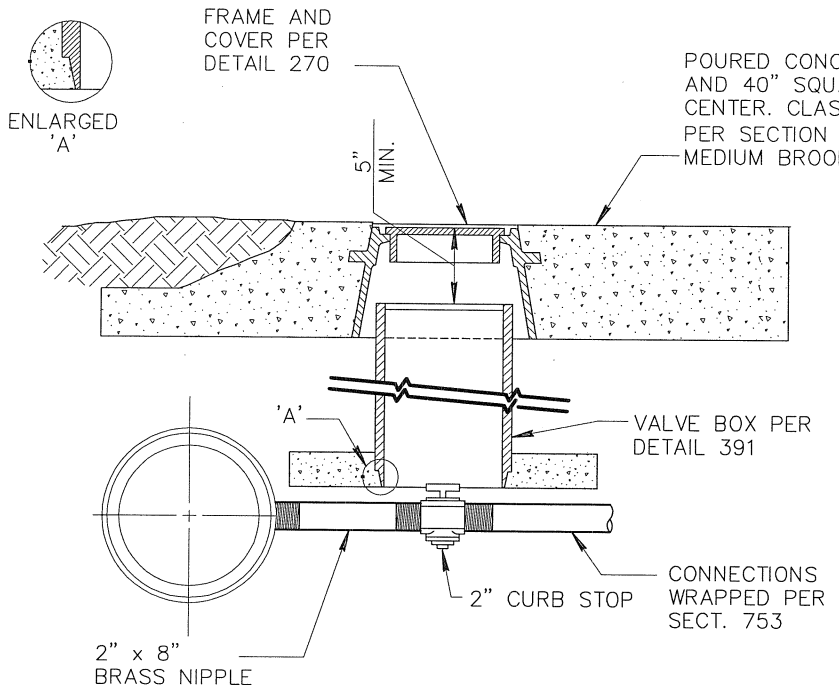
* FOR 125 P.S.I. WORKING PRESSURE.



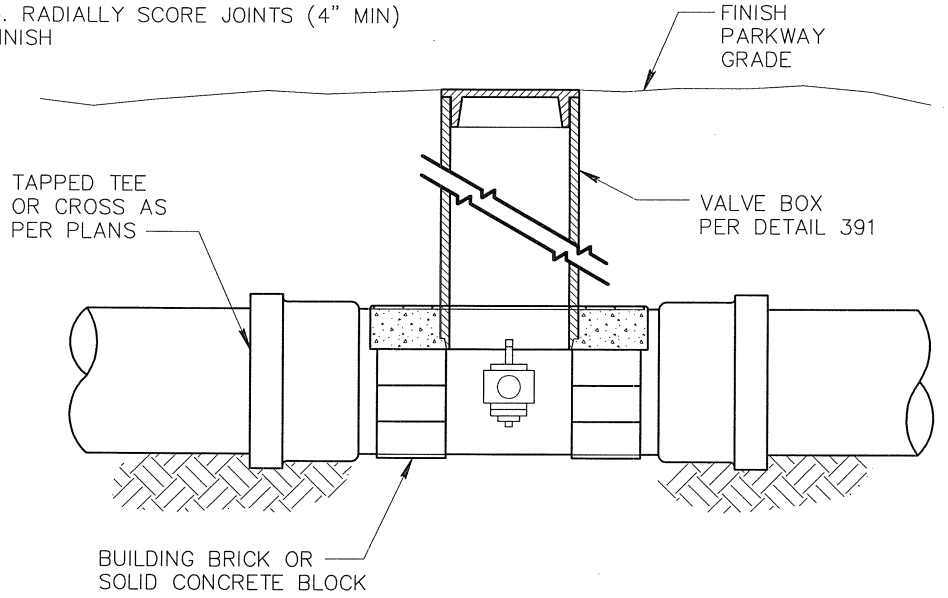
NOTES:

1. EITHER THIS DETAIL OR RESTRAINT RODS CAN BE USED WHEN IT IS ALLOWED TO RELOCATE A WATER LINE UPWARD OR DOWNWARD TO CROSS A CONFLICT.
2. DUCTILE IRON PIPE MAY BE USED.
3. BARS TO CONCRETE THRUST BLOCK TO BE COATED WITH 2 COATS COAL TAR, EPOXY OR BY OTHER APPROVED METHOD. BARS TO HAVE 90° HOOK ON LOWER END, AS PER TABLE.

DETAIL NO.			REVISED	DETAIL NO.
381	MARICOPA ASSOCIATION of GOVERNMENTS STANDARD DETAIL ENGLISH	ANCHOR BLOCKS FOR VERTICAL BENDS		381



TYPE 'A'



TYPE 'B'

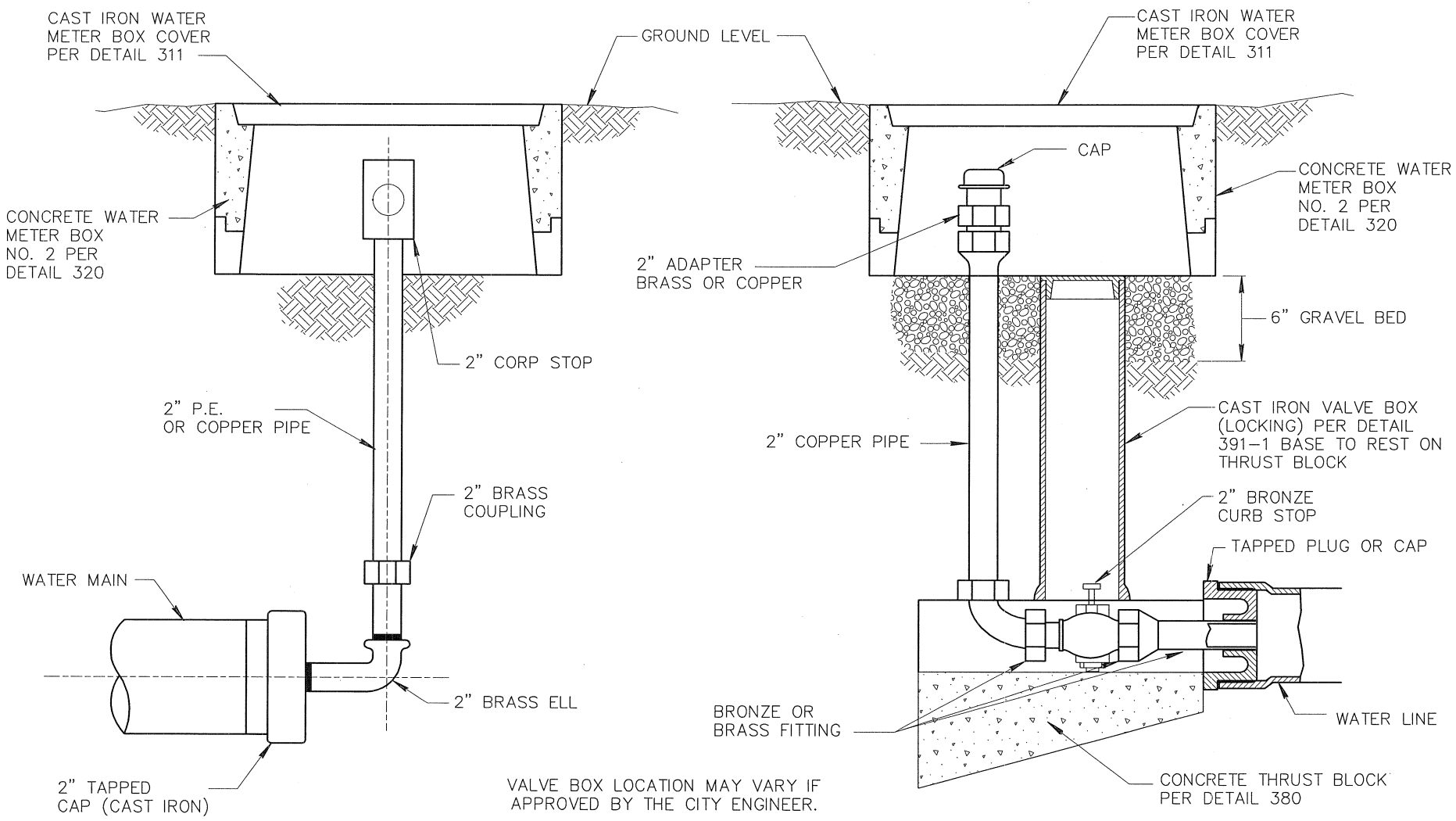
NOTES:

1. CURB STOP TO BE MUELLER ORISEAL (H–10283), FORD BALL VALVE B11–777, HAYES BULLETIN 400, J. JONES (J–1900) OR APPROVED EQUAL.
2. REDUCER MAY BE USED WHEN CONNECTING TO SMALLER GALVANIZED PIPE.
3. THIS DETAIL IS TO BE USED WHEN CONNECTING EXISTING GALVANIZED PIPE TO ASBESTOS CEMENT PIPE OR CAST IRON PIPE.

NOTE:

1. VALVE BOX TO BE SUPPORTED ON BRICKS TO PREVENT VERTICAL LOADS FROM BEING TRANSMITTED TO THE SMALL PIPE.

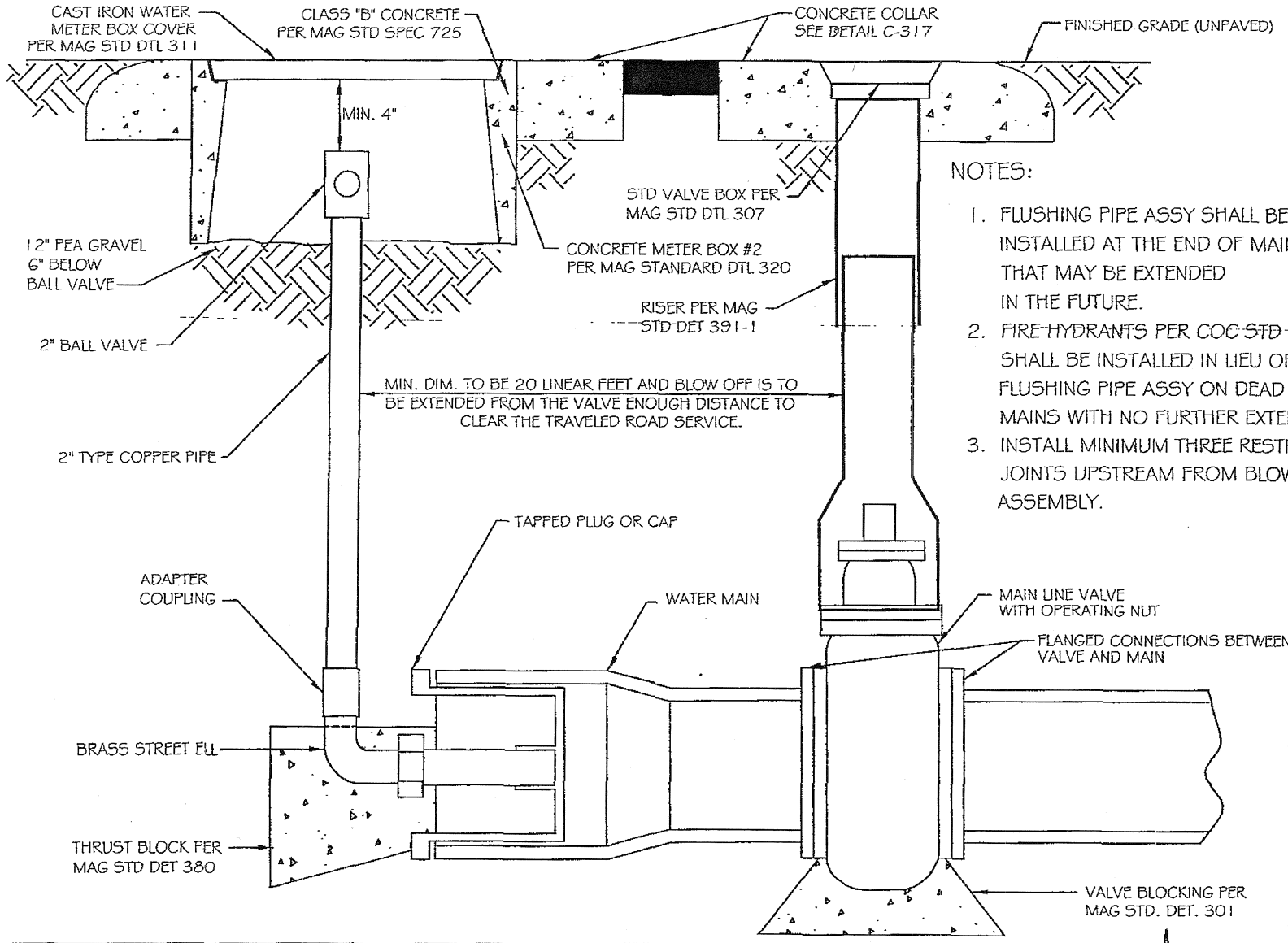
DETAIL NO.			REVISED	DETAIL NO.
389	MARICOPA ASSOCIATION of GOVERNMENTS STANDARD DETAIL ENGLISH	CURB STOP WITH VALVE BOX AND COVER	01-01-2001	389



TYPE 'A'

TYPE 'B'

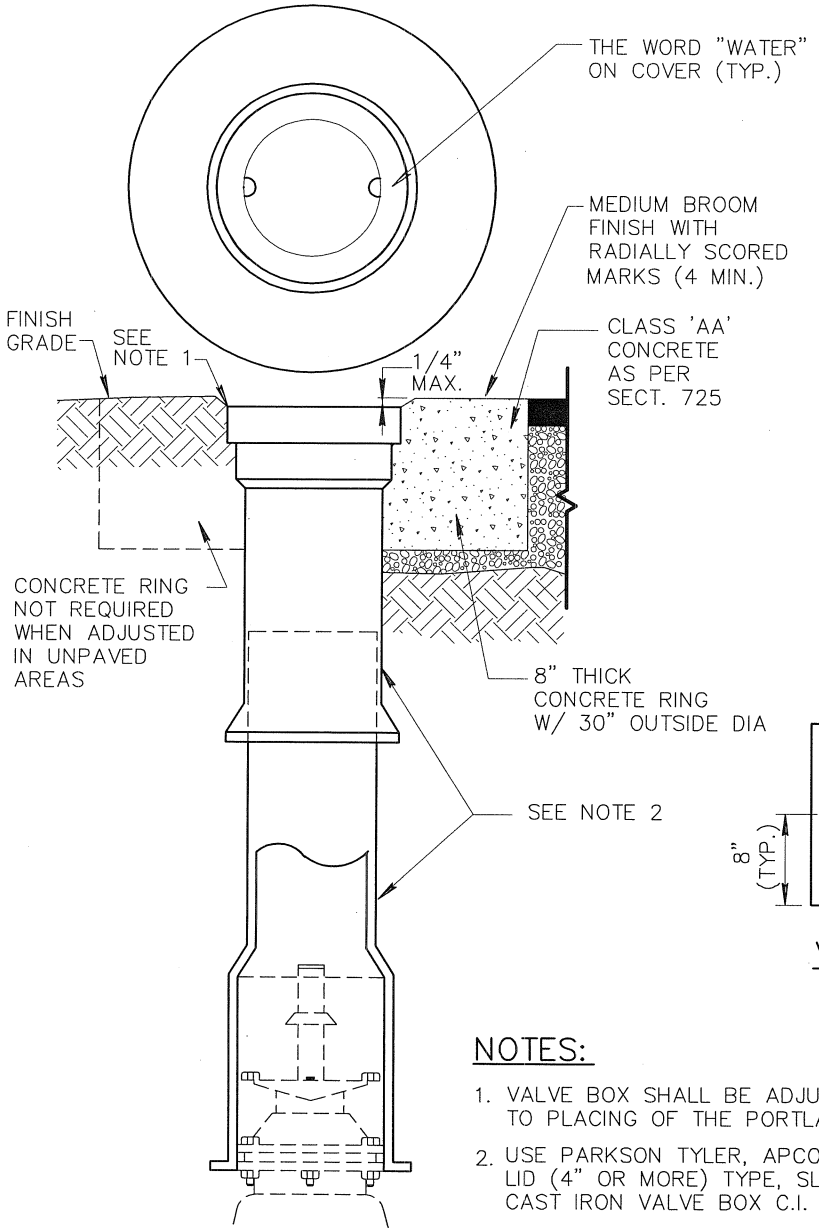
DETAIL NO.			REVISED	DETAIL NO.
390	MARICOPA ASSOCIATION of GOVERNMENTS STANDARD DETAIL ENGLISH	CURB STOP WITH FLUSHING PIPE		390



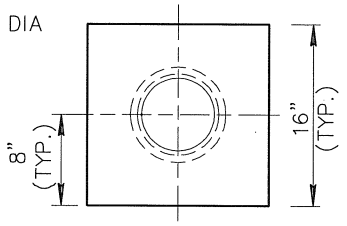
NOTES:

1. FLUSHING PIPE ASSY SHALL BE INSTALLED AT THE END OF MAINS THAT MAY BE EXTENDED IN THE FUTURE.
2. FIRE HYDRANTS PER COC STD DTL C-303 SHALL BE INSTALLED IN LIEU OF FLUSHING PIPE ASSY ON DEAD END MAINS WITH NO FURTHER EXTENSIONS.
3. INSTALL MINIMUM THREE RESTRAINED JOINTS UPSTREAM FROM BLOW-OFF ASSEMBLY.

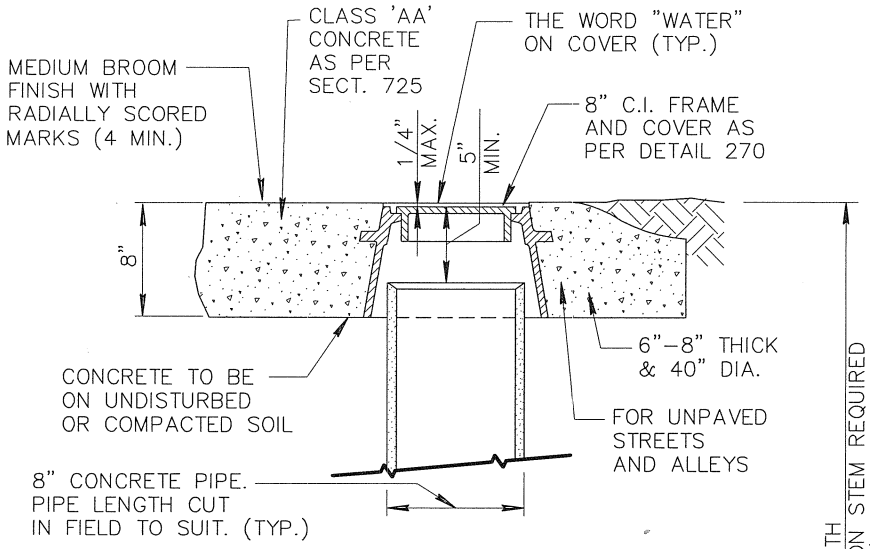
DETAIL NO.				
C-300	CITY OF CHANDLER STANDARD DETAIL	**FLUSHING PIPE ASSEMBLY WITH BALL VALVE**	APPROVED: Elizabeth W. Wilson CITY ENGINEER DATE: January 11, 2002	C-300
NTS				NTS



TYPE 'C'

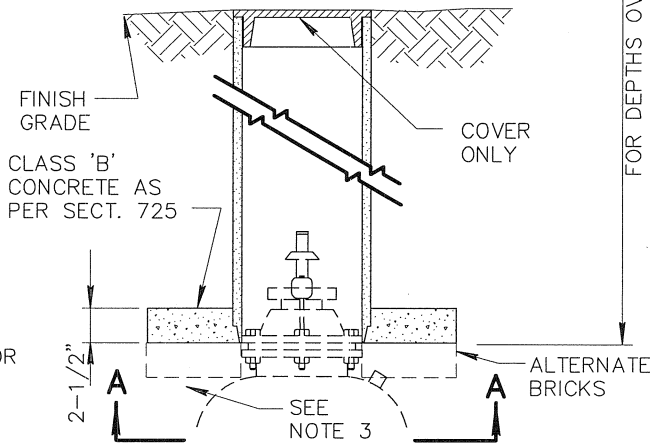


VIEW A–A



TYPE 'A'

(TO BE USED IN AREAS SUBJECT TO VEHICULAR TRAFFIC.)



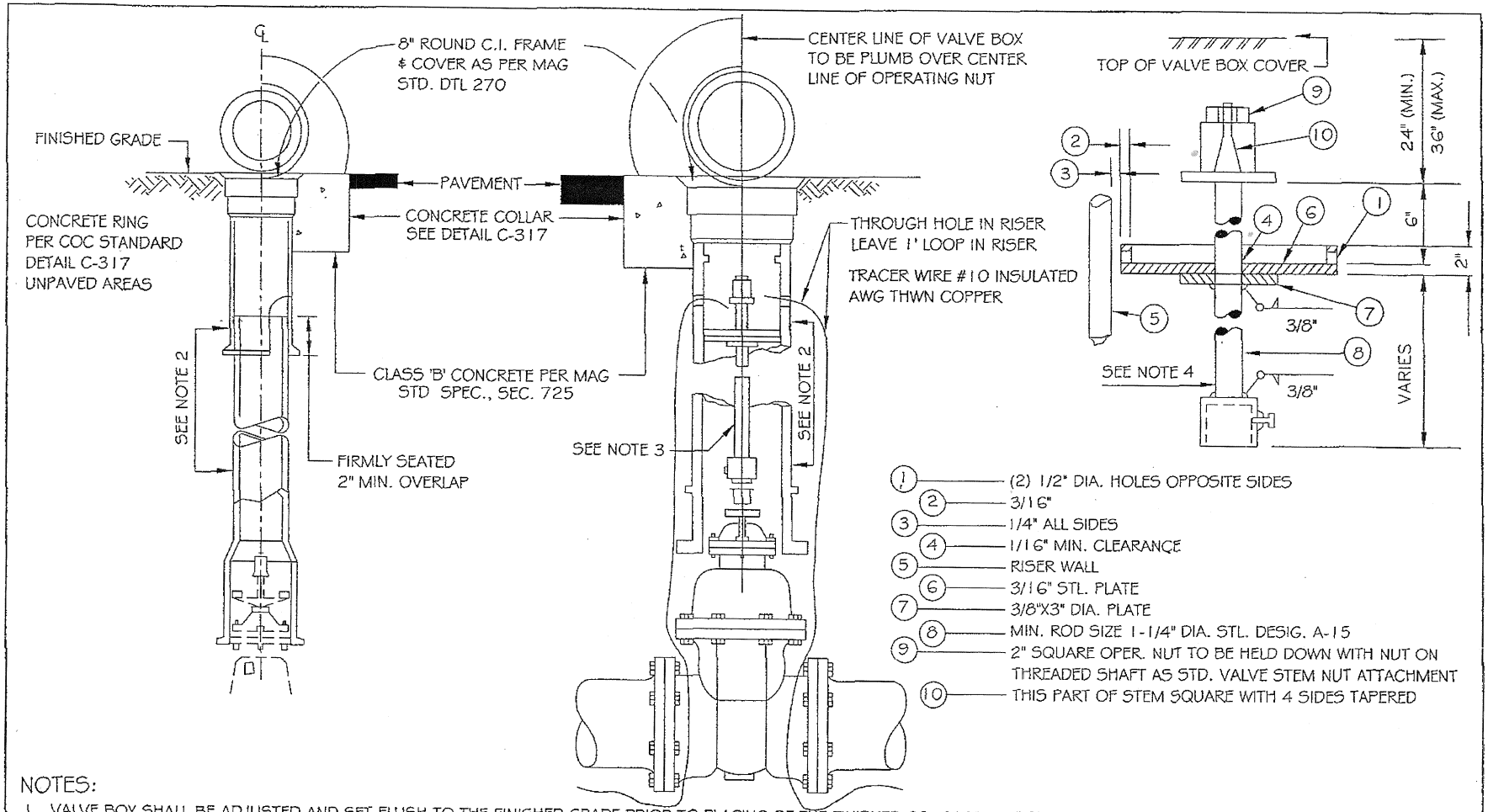
TYPE 'B'

(NOT SUBJECT TO VEHICULAR TRAFFIC)

NOTES:

1. VALVE BOX SHALL BE ADJUSTED TO THE FINISHED GRADE PRIOR TO PLACING OF THE PORTLAND CEMENT CONCRETE SURFACE.
2. USE PARKSON TYLER, APCO OR EQUAL DEEP SKIRTED LID (4" OR MORE) TYPE, SLIDING ADJUSTABLE CAST IRON VALVE BOX C.I. MIN. T.S. 30,000 P.S.I.
3. GROUND BELOW CONCRETE PAD OR 3 BRICKS TO BE COMPACTED 95% OF MAX. DENSITY.

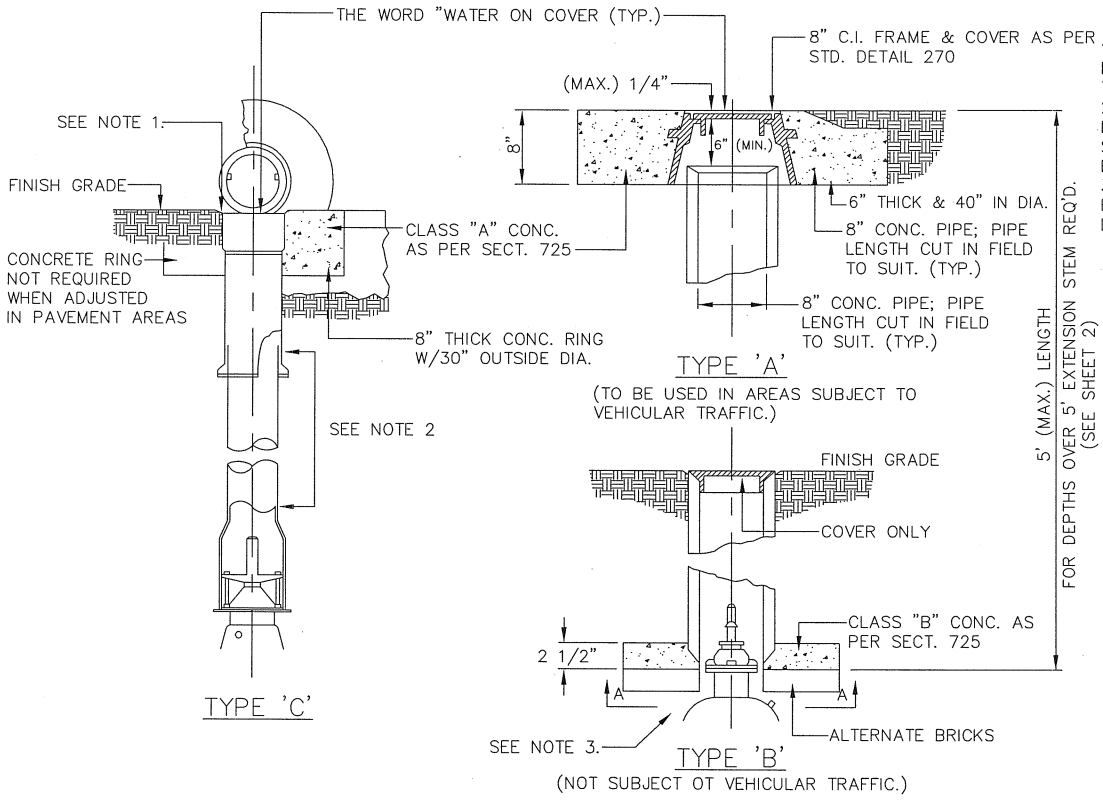
DETAIL NO.			REVISED	DETAIL NO.
391-1	MARICOPA ASSOCIATION of GOVERNMENTS — STANDARD DETAIL ENGLISH	VALVE BOX INSTALLATION AND GRADE ADJUSTMENT	01-01-2001	391-1



NOTES:

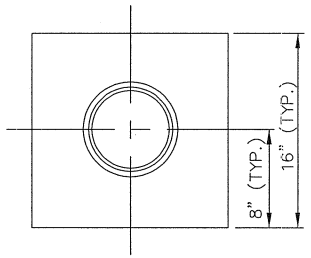
1. VALVE BOX SHALL BE ADJUSTED AND SET FLUSH TO THE FINISHED GRADE PRIOR TO PLACING OF THE FINISHED CONCRETE SURFACE, AND ON ALL ROADS THE SW SERVICES POLYMER LID (SWSPL) SHALL BE USED.
2. USE PARKSON TYLOR, APCO, OR EQUAL DEEP SKIRTED LID (4" OR MORE) TYPE, SLIDING ADJUSTABLE CAST IRON VALVE BOX. CI. MIN. T.S. 30,000 P.S.I.
3. EXTENSION STEM WITH SQUARE SOCKET TO FIT 2" SQUARE VALVE NUT. EXTENSION TO VALVE STEMS REQUIRED ON ALL VALVES INSTALLED WHERE OPERATING NUT IS OVER 5' BELOW SURFACE. LENGTH TO FIT EACH INSTALLATION. OPERATING NUT TO BE HELD ON TOP OF EXTENSION WITH STOP NUT.
4. STEM PAINTING: ALL STEEL TO HAVE PRIME COAT OF PAINT NO I-D AND ONE HEAVY APPLICATION (FINISH COAT) OF PAINT NO. 9 AS PER MAG STANDARD SPECIFICATIONS SEC. 790.
5. ALL BACKFILL MATERIAL PLACED AS PART OF THE FINAL VALVE BOX ADJUSTMENT SHALL BE A B.C. 1-SACK SLURRY AS PER COC STANDARD SPECIFICATION 3.

C-307 **REPLACES** **51**	CITY OF CHANDLER STANDARD DETAIL	**VALVE BOX INSTALLATION (POTABLE WATER)**	APPROVED _____ CITY ENGINEER DATE January 11, 2002	DETAIL NO. **C-307** NTS



NOTES

1. VALVE BOX SHALL BE ADJUSTED TO THE FINISHED GRADE PRIOR TO PLACING OF THE ASPHALTIC CONCRETE SURFACE.
2. USE PARKSON TYLER, APCO, OR EQUAL DEEP SKIRTED LID (4" OR MORE) TYPE, SLIDING ADJUSTABLE CAST IRON VALVE BOX. C.I. MIN. T.S. 30,000 P.S.I.
3. GROUND BELOW CONCRETE PAD OR 3 BRICKS TO BE COMPACTED 95% OF MAX. DENSITY.



VIEW A–A

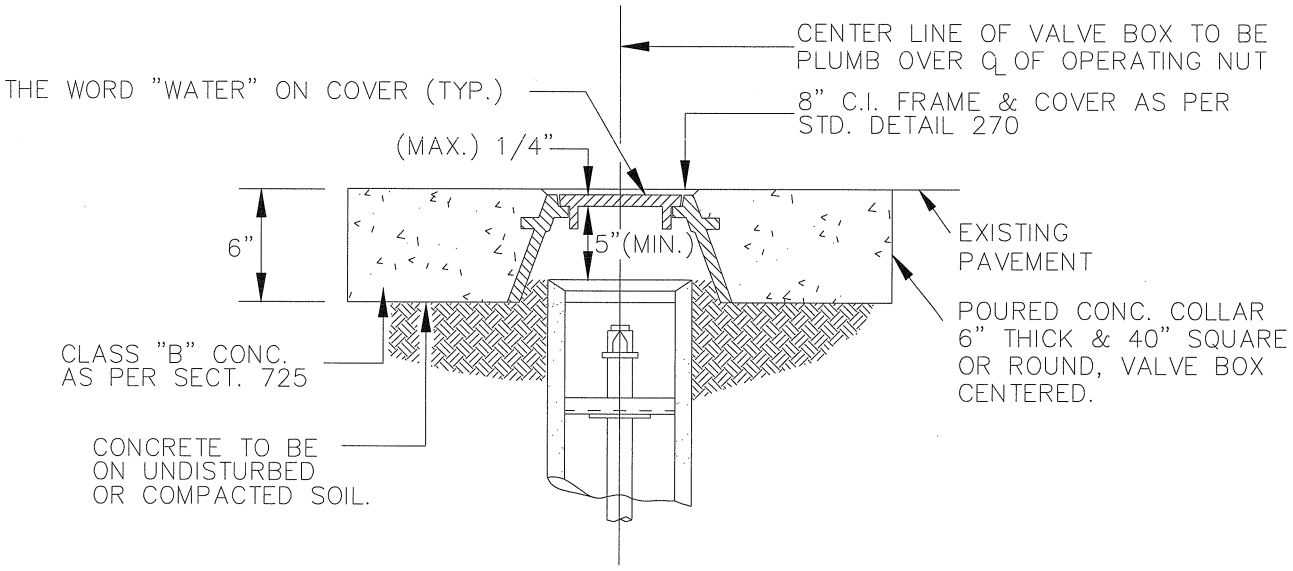
DETAIL NO. G-3320-1	CITY OF GOODYEAR STANDARD DETAIL	APPROVED BY: Goodyear Standards and Policies Committee 7/97	VALVE BOX INSTALLATION AND GRADE ADJUSTMENT	DETAIL NO. G-3320-1

PEORIA DETAIL 393

WATER VALVE ADJUSTMENT

APPROVALS:

CITY ENGINEER DATE



VALVE

NOT TO SCALE

I:\GUIDE\DETAILS\393.DWG

07/16/98

NOTES:

1. VALVE OPERATION NUT EXTENSION:
   EXTENSION TO VALVE STEMS REQUIRED ON ALL VALVES WHERE OPERATING NUT IS OVER 5' BELOW SURFACE. LENGTH TO FIT EACH INSTALLATION.

2. IF TWO OR MORE JOINTS OF C900 PVC "WATER" PIPE RISER ARE NEEDED, THEY SHALL BE COUPLED AND GLUED WITH APPROPRIATE PVC GLUE TO FORM A DEBRIS–TIGHT JOINT.

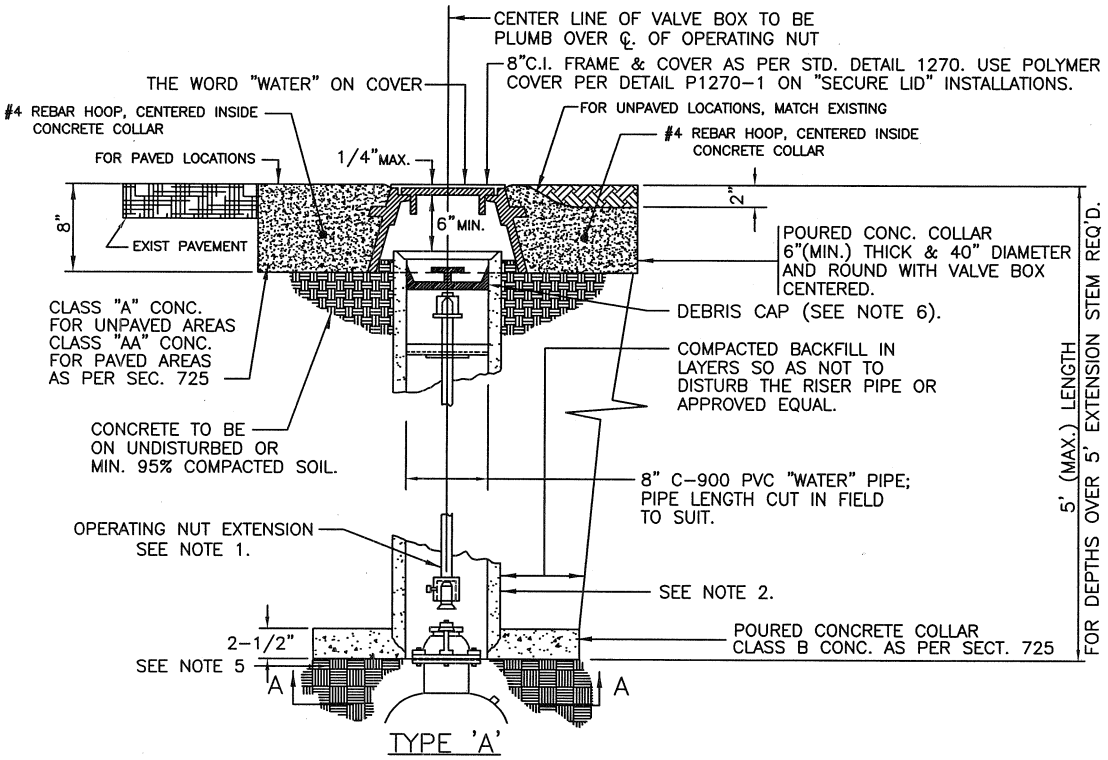
3. VALVE BOX SHALL BE ADJUSTED TO THE FINISH GRADE AFTER PLACING THE ASPHALTIC CONCRETE SURFACE.

4. USE PARKSON TYLER, APCO, OR EQUAL DEEP SKIRTED COVER LID (4" DEEP OR MORE) C.I. MIN. T.S. 30,000 P.S.I. USE SECURE POLYMER VALVE BOX LID WITH LID–RETENTION ELASTOMER SEAL PER DETAIL 1270–1 WHERE "SECURE" LIDS ARE SPECIFIED.

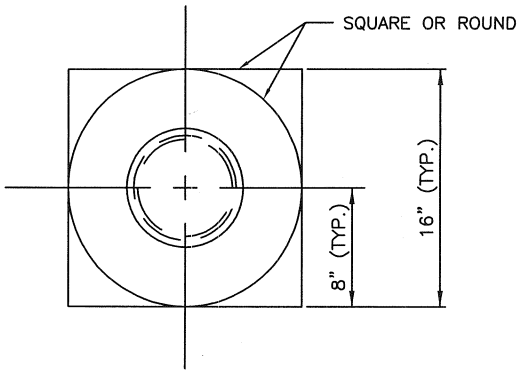
5. GROUND BELOW CONCRETE PAD TO BE COMPACTED TO MIN. 95% OF MAX DENSITY.

6. INSTALL DEBRIS CAP PER DETAIL P1165 IN THE VALVE RISER WHEN SPECIFICALLY REQUIRED ON THE CONSTRUCTION PLAN.

FOR VALVE OPERATION NUT EXTENSION
SEE DETAIL 1391–1

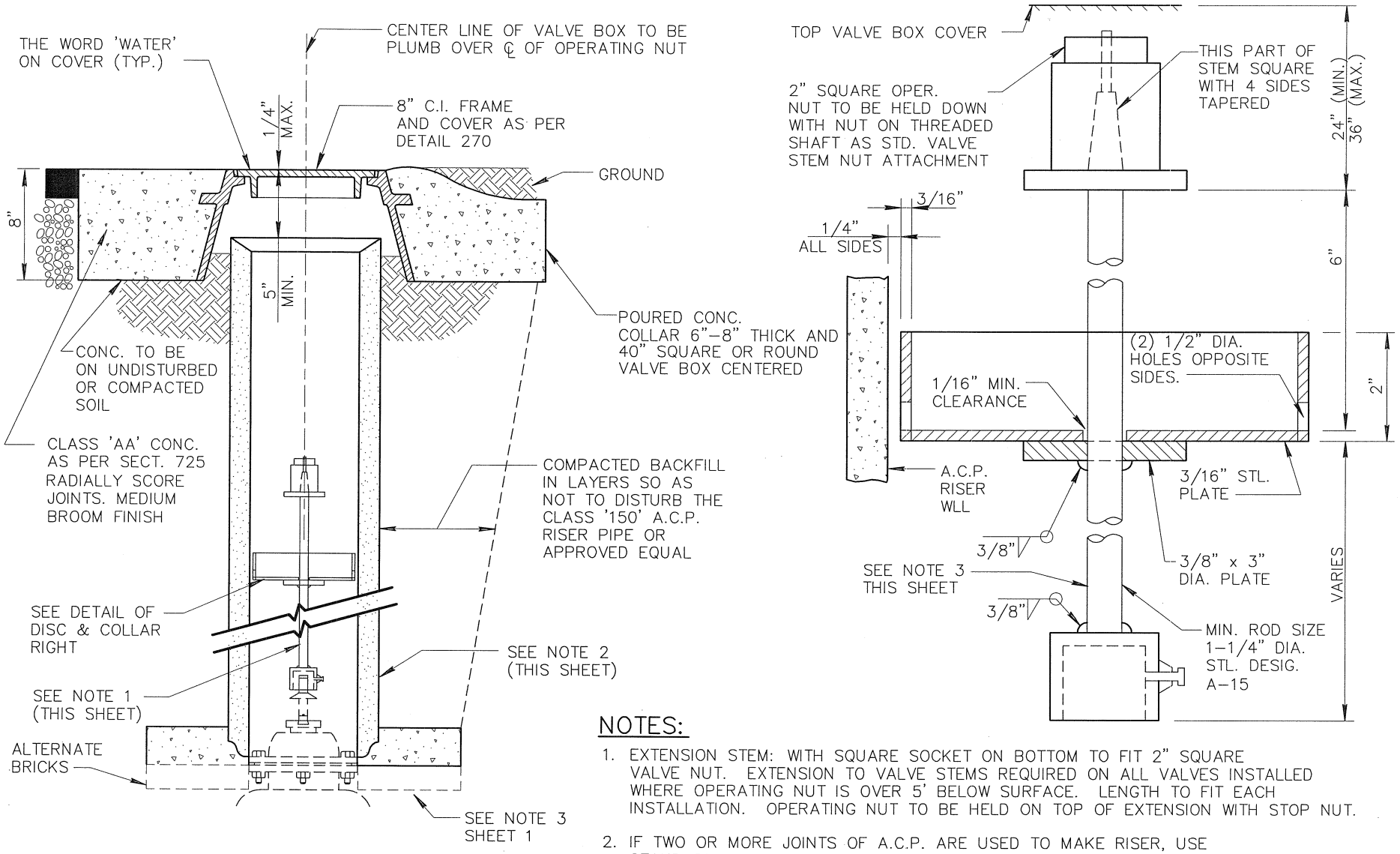


TYPE 'A'



VIEW A–A

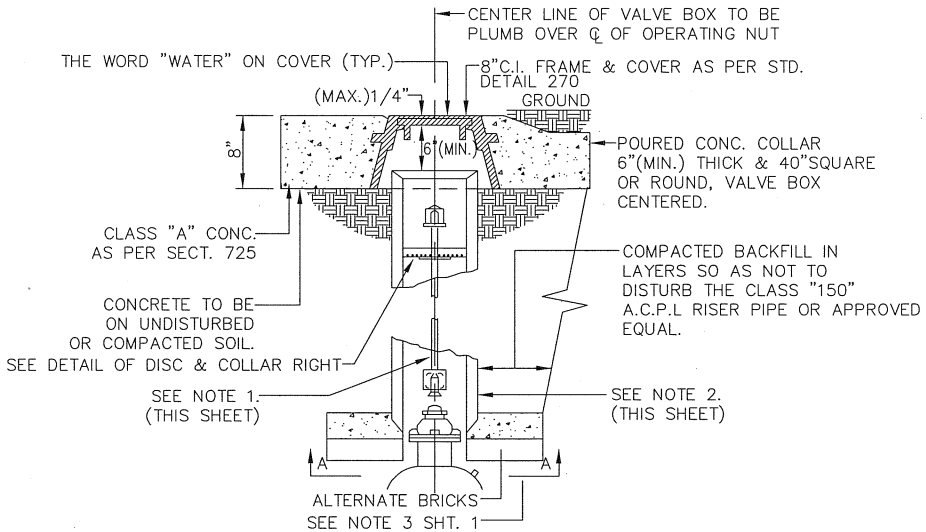
DETAIL NO.				DETAIL NO.
P1391	**City of Phoenix STANDARD DETAIL**	VALVE BOX INSTALLATION	APPROVED Mario SaDamando CITY ENGINEER — 07-19-04 DATE	P1391

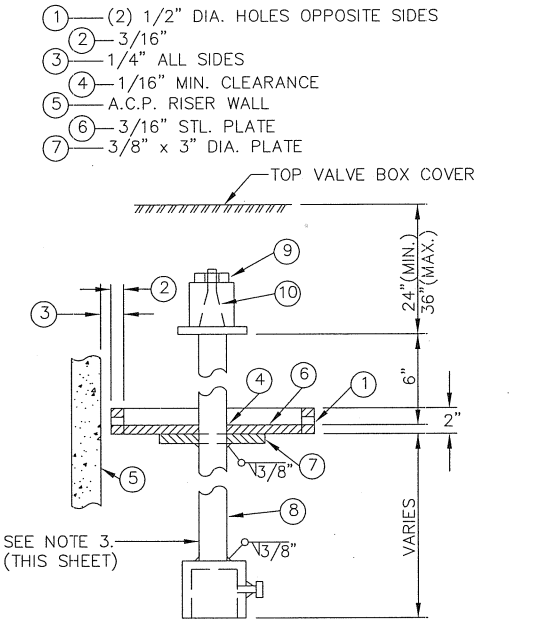


NOTES:

1. EXTENSION STEM: WITH SQUARE SOCKET ON BOTTOM TO FIT 2" SQUARE VALVE NUT. EXTENSION TO VALVE STEMS REQUIRED ON ALL VALVES INSTALLED WHERE OPERATING NUT IS OVER 5' BELOW SURFACE. LENGTH TO FIT EACH INSTALLATION. OPERATING NUT TO BE HELD ON TOP OF EXTENSION WITH STOP NUT.
2. IF TWO OR MORE JOINTS OF A.C.P. ARE USED TO MAKE RISER, USE STANDARD A.C. PIPE RUBBER GASKET COUPLING TO JOIN PIPE. WHERE RISER LENGTH EXCEEDS 10' USE 12" A.C. PIPE.
3. STEM PAINTING: ALL STEEL TO HAVE PRIME COAT OF PAINT NO. 1–D AND ONE HEAVY APPLICATION (FINISH COAT) OF PAINT NO. 9 AS PER SECT. 790.

DETAIL NO.			REVISED	DETAIL NO.
391-2	MARICOPA ASSOCIATION of GOVERNMENTS **STANDARD DETAIL ENGLISH**	**VALVE BOX INSTALLATION AND GRADE ADJUSTMENT**	01-01-2001	391-2

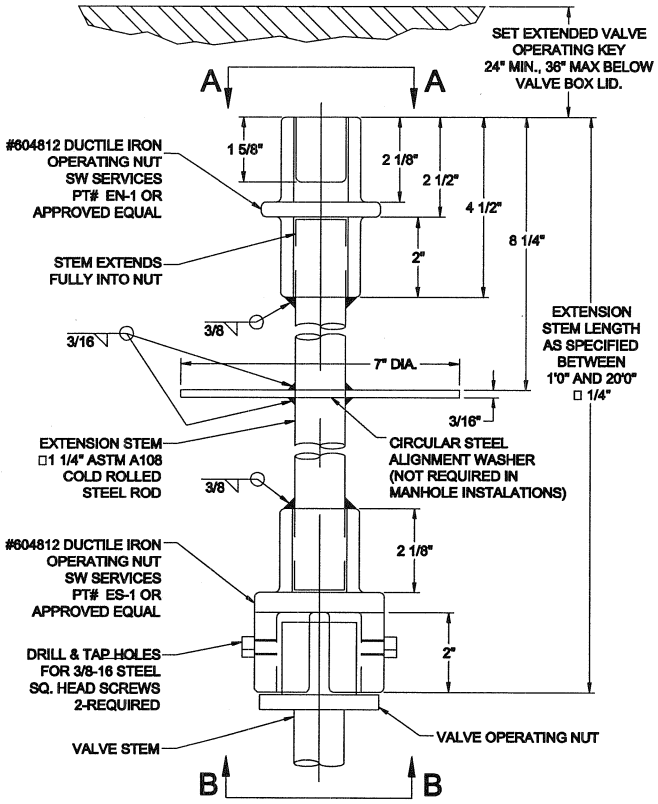




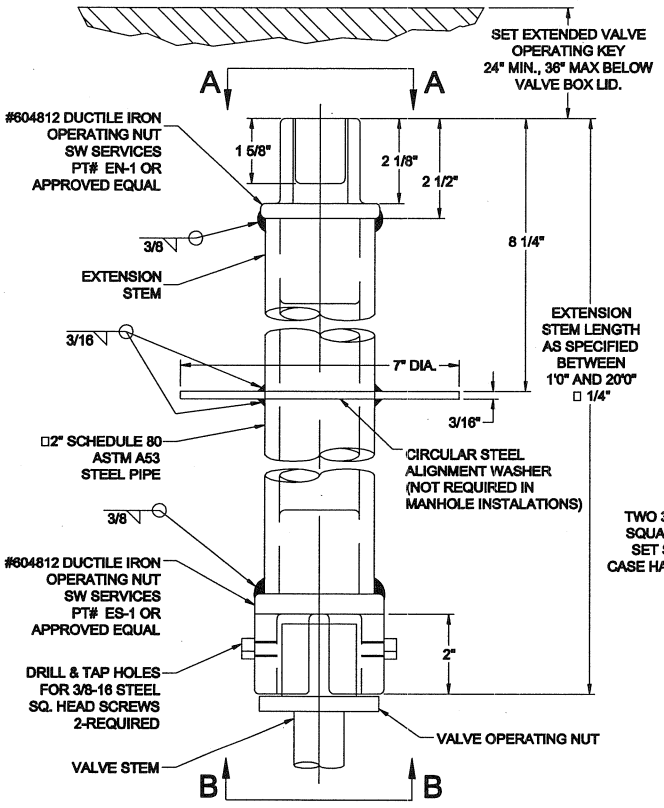
NOTES

1. EXTENSION STEM: WITH SQUARE SOCKET ON BOTTOM TO FIT 2"SQUARE VALVE NUT. EXTENSION TO VALVE STEMS REQUIRED ON ALL VALVES INSTALLED WHERE OPERATION NUT IS OVER 5' BELOW SURFACE. LENGTH TO FIT EACH INSTALLATION. OPERATING NUT TO BE HELD ON TOP OF EXTENSION WITH STOP NUT.
2. IF TWO OR MORE JOINTS OF A.C.P. ARE USED TO MAKE RISER, USE STANDARD A.C. PIPE RUBBER GASKET COUPLING TO JOIN PIPE. WHERE RISER LENGTH EXCEEDS 10' USE 12' A.C. PIPE
3. STEM PAINTING: ALL STEEL TO HAVE PRIME COAT OF PAINT NO.1-D AND ONE HEAVY APPLICATION (FINISH COAT) OF PAINT NO.9 AS PER SECT. 790.

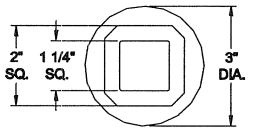
DETAIL NO. G-3320-2	CITY OF GOODYEAR STANDARD DETAIL	APPROVED BY: Goodyear Standards and Policies Committee 7/97	VALVE BOX INSTALLATION	DETAIL NO. G-3320-2



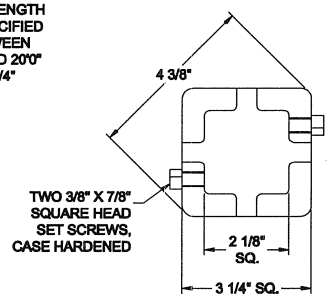
TYPE I
FOR USE WITH GATE VALVES UNDER 12" AND ALL BUTTERFLY VALVES



TYPE II
FOR USE WITH GATE VALVES 12" AND UP



VIEW A-A

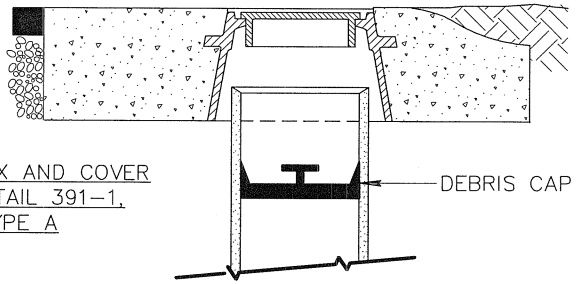


VIEW B-B

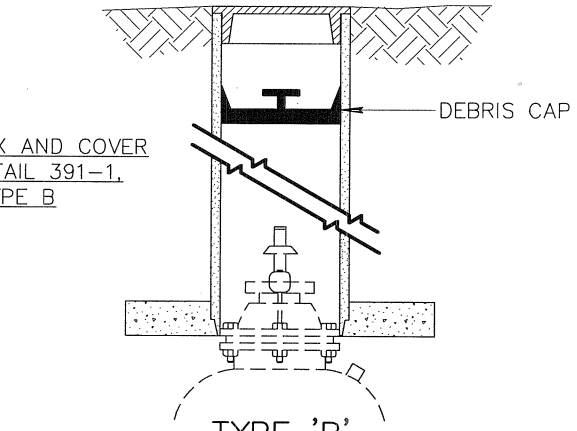
NOTE:

STEM PAINTING:
ALL STEEL TO HAVE PRIME COAT OF PAINT No. 1-D AND ONE HEAVY APPLICATION "FINISH COAT" OF PAINT No. 9 AS PER SECT. 790

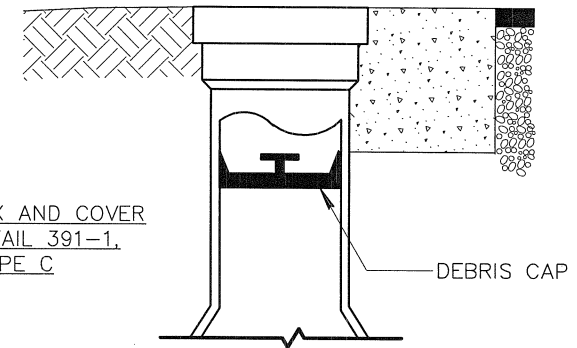
DETAIL NO.	City of Phoenix STANDARD DETAIL	VALVE OPERATING NUT EXTENSION	APPROVED	DETAIL NO.
P1391–1			CITY ENGINEER — 6–27–01 DATE	P1391–1



TYPE 'A'



TYPE 'B'

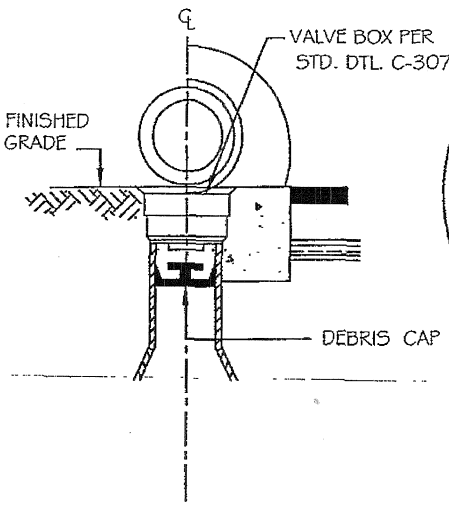


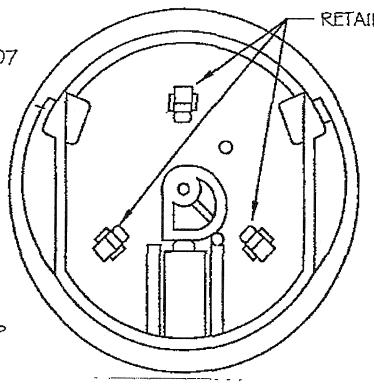
TYPE 'C'

NOTES:

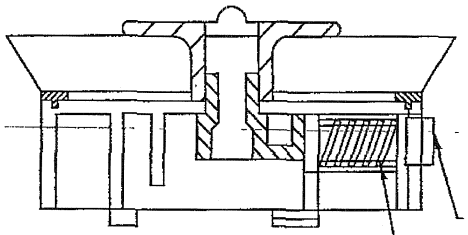
1. THE DEBRIS CAP SHALL BE DESIGNED AND INSTALLED TO PREVENT DEBRIS SUCH AS DIRT, DUST SAND, ETC., FROM PASSING AROUND THE CAP AND DOWN INTO THE VALVE HOUSING. THE CAP SHALL BE HELD IN PLACE BY A MECHANISM WHICH WILL NOT DAMAGE THE VALVE HOUSING. ONCE INSTALLED THE CAP MUST WITHSTAND, WITHOUT SLIPAGE, A MINIMUM VERTICAL FORCE OF 50 POUNDS AT A LOADING RATE OF 1 INCH/MINUTE.
2. THE CAP SHALL BE MANUFACTURED OF CORROSIVE RESISTANT MATERIALS.
3. DEBRIS CAP SHALL BE INSTALLED AS CLOSE UNDER THE CAST IRON COVER WITHOUT INTERFERING WITH COVER OPERATION.
4. THE CAP SHALL BE CAPABLE OF SECURELY HOLDING A STANDARD LOCATING COIL, "SCOTCH MARK" 4 DISK MARKER BY 3M OR EQUAL.
5. THE CAP SHALL BE CONSTRUCTED TO ALLOW THE DEVICE TO BE SECURED BY A LOCK. THE LOCK (PAD, BARREL, ETC.) SHALL BE SUPPLIED BY THE AGENCY.
6. THE HANDLE AND/OR BODY OF THE CAP SHALL BE INTEGRALLY COLORED IF REQUIRED BY THE AGENCY. IF REQUIRED, THE COLOR SHALL CONFORM TO THE ONE CALL LOCATING SERVICE (BLUE STAKE) COLORS (ARS 40-360.21).
7. THE CAP SHALL BE INSTALLED IN ALL VALVE HOUSINGS AS REQUIRED BY THE CONTRACT DOCUMENTS OR BY THE AGENCY'S POLICIES.
8. THE DEBRIS CAP SHALL BE MANUFACTURED BY SW SERVICES, INC. PHOENIX, ARIZONA OR EQUAL.

DETAIL NO.			REVISED	DETAIL NO.
392	MARICOPA ASSOCIATION of GOVERNMENTS STANDARD DETAIL ENGLISH	DEBRIS CAP INSTALLATION	01-01-2001	392

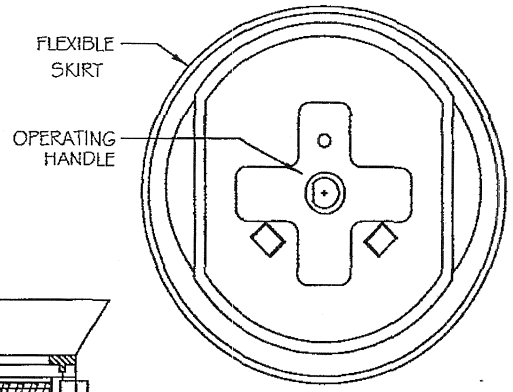




BOTTOM VIEW



SECTION VIEW

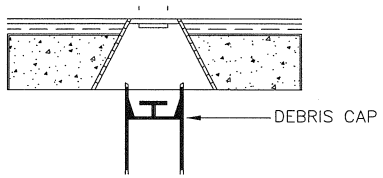


TOP VIEW

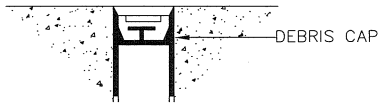
NOTES:

1. DEBRIS CAP SHALL BE INSTALLED AS CLOSE AS POSSIBLE UNDER THE CAST IRON COVER WITHOUT INTERFERING WITH COVER OPERATION.
2. FLEXIBLE SKIRT SHALL BE TRIMMED TO PROVIDE A SMOOTH CONTACT WITH THE INTERIOR DIAMETER OF THE PIPE.
3. THE DEBRIS CAP SHALL BE MANUFACTURED BY SW SERVICES, INC., PHOENIX, ARIZONA OR APPROVED EQUAL.
4. THE DEBRIS CAP SHALL BE COMPRISED OF A HOLLOW MEMBER HAVING A CYLINDRICAL OUTER SURFACE, A CLOSURE FOR ONE END AND THREE POINT RESILIENT CONTACT PADS PROJECTING FROM THE OUTER SURFACE. THE CAP SHALL HAVE A FLEXIBLE SKIRT PROVIDING AN OUTWARD SEAL PREVENTING DEBRIS FROM GETTING PAST THE CAP. CAP MUST WITHSTAND, WITHOUT SLIPPAGE, A MINIMUM VERTICAL FORCE OF 50 POUNDS, AT A LOADING RATE OF 1.0 IN/MINUTE. THE CAP SHALL BE MOLDED USING GENERAL ELECTRIC ABS #HIM 4500. THE CAP SHALL HAVE RETAINING PRONGS TO RETAIN A STANDARD LOCATING COIL.
5. THE CAP SHALL BE MANUFACTURED OF CORROSIVE RESISTANT MATERIALS.
6. THE CAP SHALL BE CAPABLE OF SECURELY HOLDING A STANDARD LOCATING COIL, "SCOTCH MARK" 4 DISK MARKER BY 3M OR EQUAL.
7. THE CAP SHALL BE CONSTRUCTED TO ALLOW THE DEVICE TO BE SECURED BY A LOCK. THE LOCK (PAD, BARREL, ETC.) SHALL BE SUPPLIED BY THE AGENCY.
8. THE HANDLE AND/OR BODY OF THE CAP SHALL BE INTEGRALLY COLORED IF REQUIRED BY THE AGENCY. IF REQUIRED THE COLOR SHALL CONFORM TO THE ON CALL LOCATING SERVICE (BLUE STAKE) COLORS (ARS 40-360.21).
9. THE CAP SHALL BE INSTALLED IN ALL VALVE HOUSINGS AS REQUIRED BY THE CONTRACT DOCUMENTS OR BY THE AGENCY'S POLICIES.

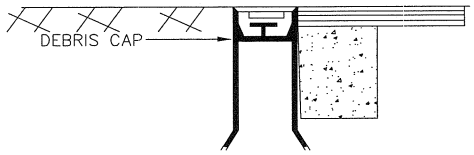
C-318 **REPLACES** **49**	CITY OF CHANDLER STANDARD DETAIL	**DEBRIS AND LOCKING CAP**	APPROVED: CITY ENGINEER DATE: January 11, 2002	DETAIL NO. **C-318** NTS



TYPE "A"



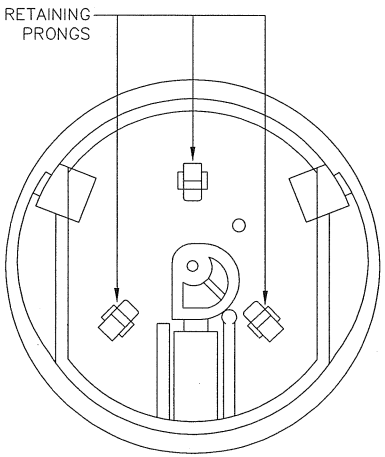
TYPE "B"



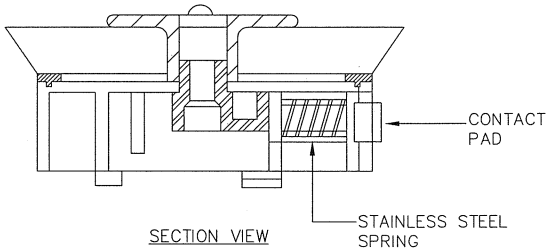
TYPE "C"

NOTES

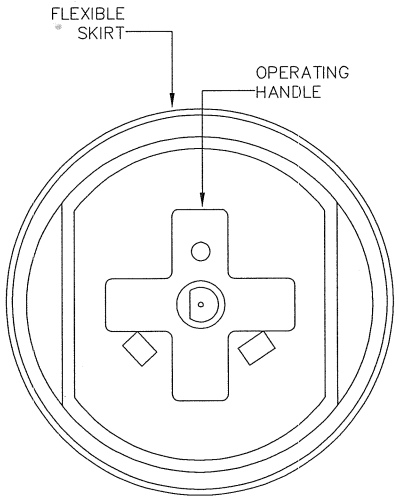
1. DEBRIS CAP SHALL BE INSTALLED AS CLOSE UNDER THE CAST IRON COVER WITHOUT INTERFERING WITH COVER OPERATION.
2. FLEXIBLE SKIRT SHALL BE TRIMMED TO PROVIDE A SMOOTH CONTACT WITH THE INTERIOR DIAMETER OF THE PIPE.
3. THE DEBRIS CAP SHALL BE MANUFACTURED BY SW SERVICES, INC., PHOENIX, ARIZONA OR EQUAL.
4. THE DEBRIS CAP SHALL BE COMPRISED OF A HOLLOW MEMBER HAVING A CYLINDRICAL OUTER SURFACE, A CLOSURE FOR ONE END AND THREE POINT RESILIENT CONTACT PADS PROJECTING FROM THE OUTER SURFACE. THE CAP SHALL HAVE A FLEXIBLE SKIRT PROVIDING AN OUTWARD SEAL PREVENTING DEBRIS FROM GETTING PAST THE CAP. THE CAP MUST WITHSTAND, WITHOUT SLIPPAGE, A MINIMUM VERTICAL FORCE OF 50 POUNDS, AT A LOADING RATE OF 1.0 IN./ MINUTE. THE CAP SHALL BE MOLDED USING GENERAL ELECTRIC ABS #HIM 4500. THE CAP SHALL HAVE RETAINING PRONGS TO RETAIN A STANDARD LOCATING COIL.



BOTTOM VIEW

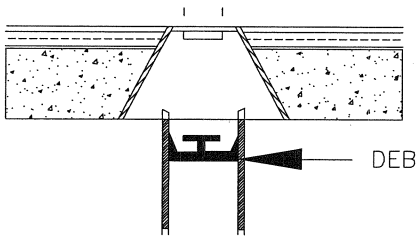


SECTION VIEW



TOP VIEW

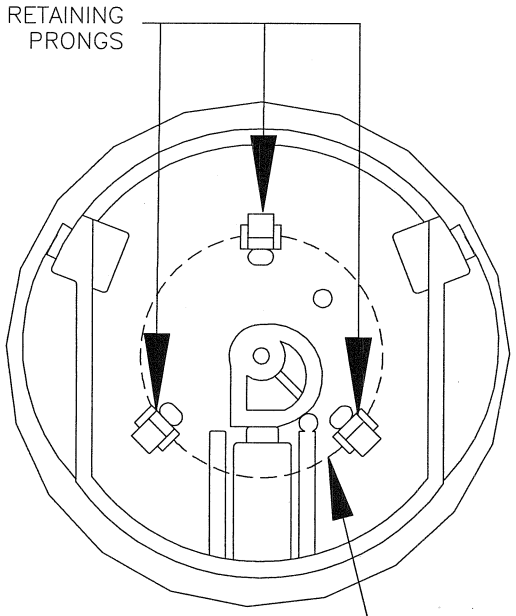
DETAIL NO. G-3321	CITY OF GOODYEAR STANDARD DETAIL	APPROVED BY: Goodyear Standards and Policies Committee 7/97	DEBRIS CAP INSTALLATION	DETAIL NO. G-3321



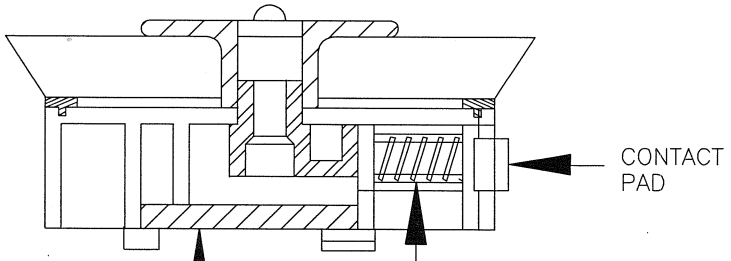
TYPE "A"

NOTES

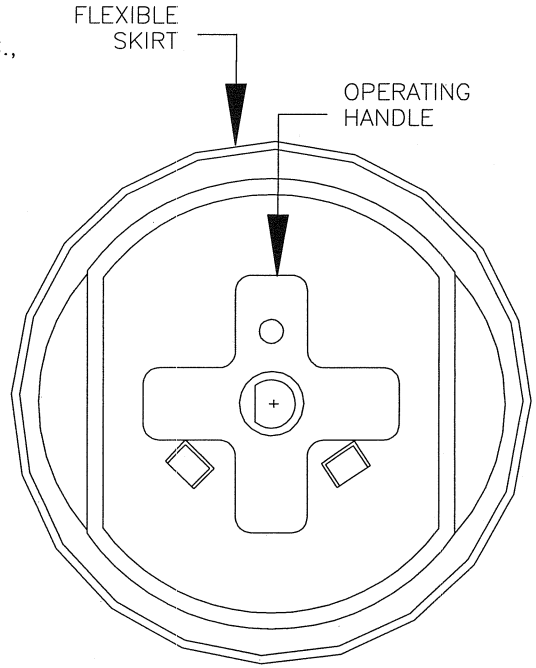
1. DEBRIS CAP SHALL BE INSTALLED AS CLOSE UNDER THE CAST IRON COVER WITHOUT INTERFERING WITH COVER OPERATION.
2. FLEXIBLE SKIRT SHALL BE TRIMMED TO PROVIDE A SMOOTH CONTACT WITH THE INTERIOR DIAMETER OF THE PIPE.
3. THE DEBRIS CAP SHALL BE MANUFACTURED BY SW SERVICES, INC., PHOENIX, ARIZONA OR EQUAL.
4. THE DEBRIS CAP SHALL BE COMPRISED OF A HOLLOW MEMBER HAVING A CYLINDRICAL OUTER SURFACE, A CLOSURE FOR ONE END AND THREE POINT RESILIENT CONTACT PADS PROJECTING FROM THE OUTER SURFACE. THE CAP SHALL HAVE A FLEXIBLE SKIRT PROVIDING AN OUTWARD SEAL PREVENTING DEBRIS FROM GETTING PAST THE CAP. THE CAP MUST WITHSTAND, WITHOUT SLIPPAGE, A MINIMUM VERTICAL FORCE OF 50 POUNDS, AT A LOADING RATE OF 1.0 IN/ MINUTE. THE CAP SHALL BE MOLDED USING GENERAL ELECTRIC ABS #HIM 4500. THE CAP SHALL HAVE RETAINING PRONGS TO RETAIN A STANDARD LOCATING COIL. SCOTCHMARK 4" DISC MARKER 141.7khz BY 3M, OR EQUAL.



BOTTOM VIEW



SECTION VIEW



TOP VIEW

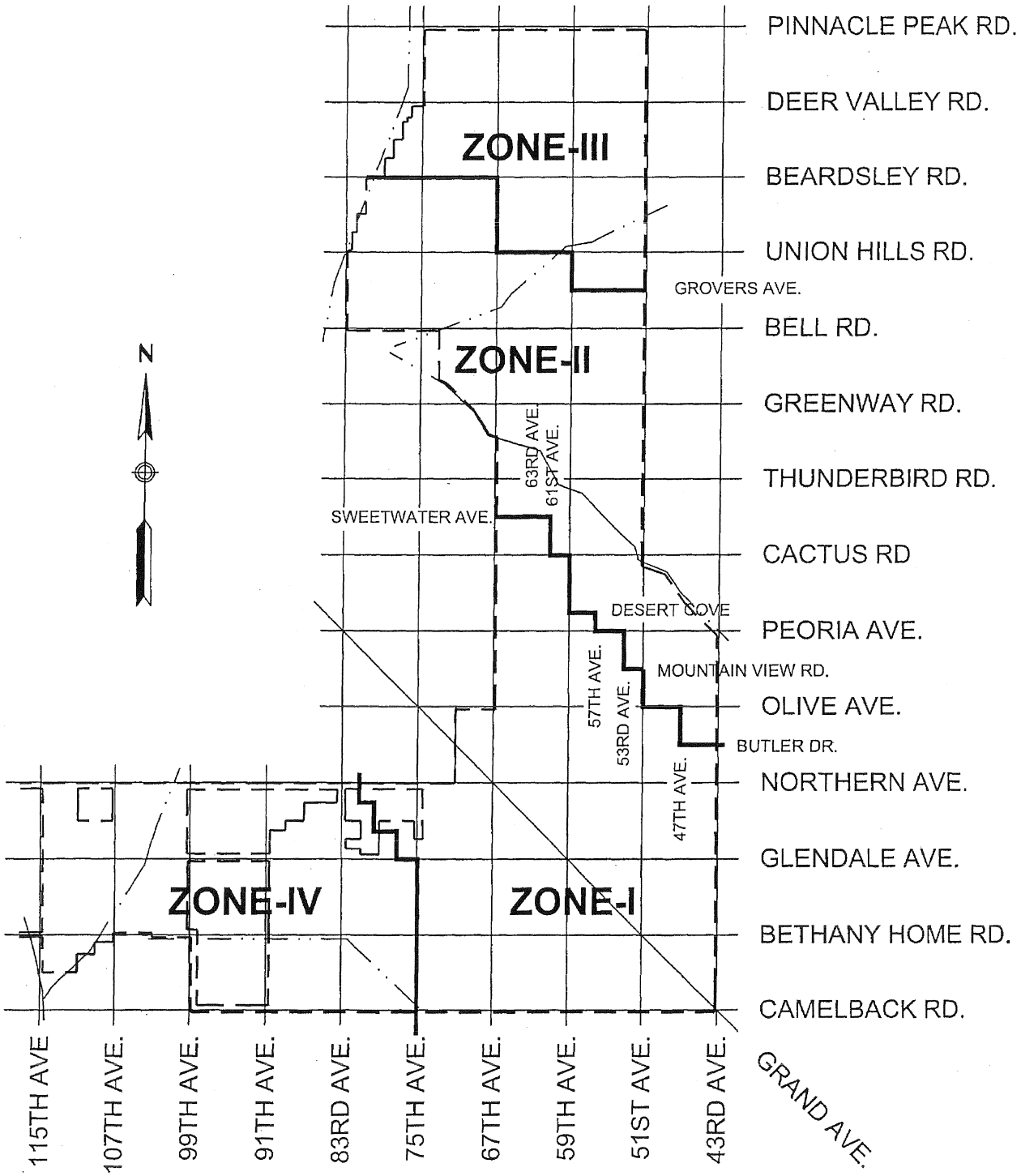
DETAIL NO.			APPROVED	DETAIL NO.
P1165	City of Phoenix STANDARD DETAIL	DEBRIS CAP INSTALLATION	FOR CITY ENGINEER — 6-27-01 DATE	P1165

STANDARD DETAIL G-600

CITY OF GLENDALE
ENGINEERING

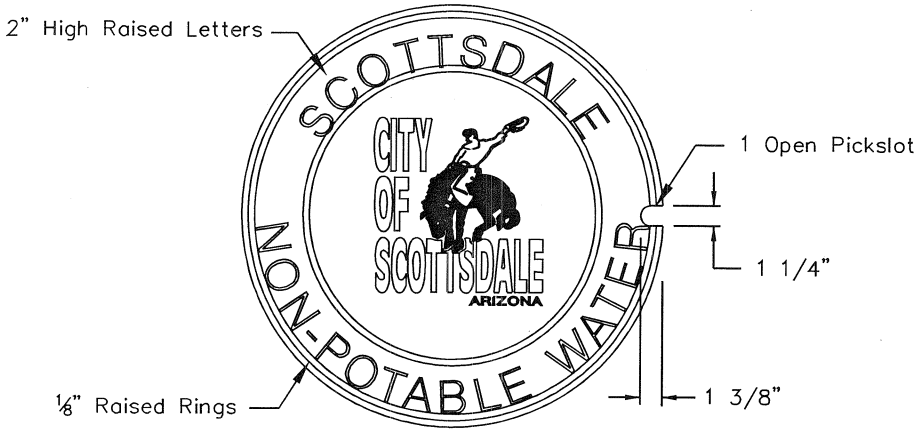
GLENDALE

WATER DISTRIBUTION SYSTEM ZONES

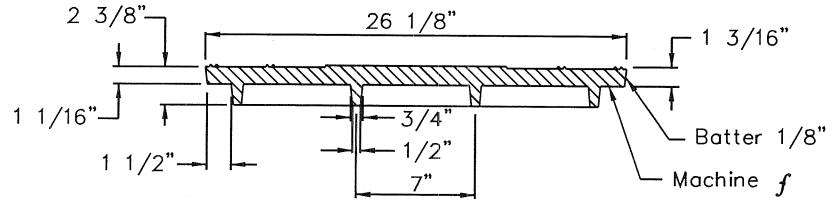


REVISED : JUNE 2002

PREVIOUS :

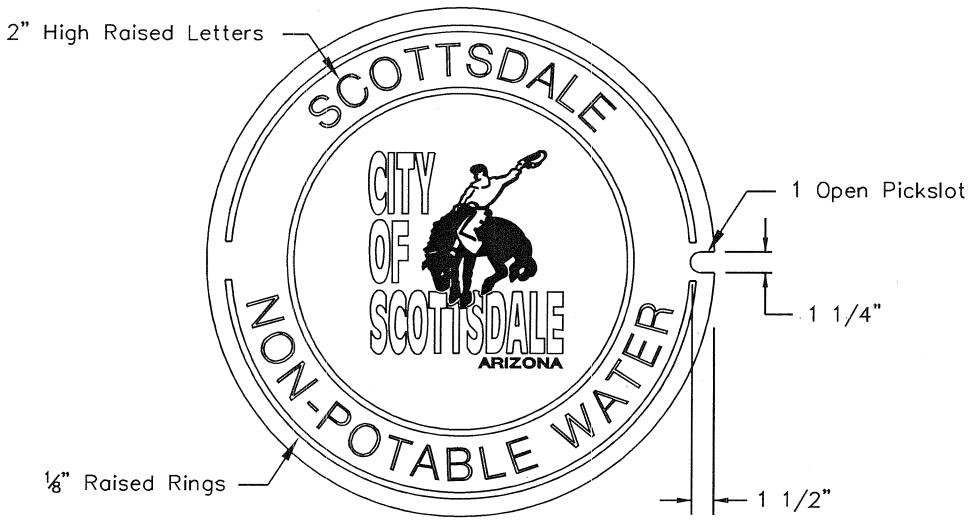


TOP VIEW

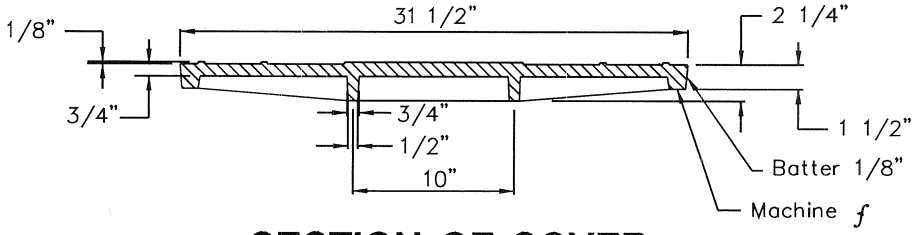


SECTION OF COVER

24" MANHOLE COVER



TOP VIEW



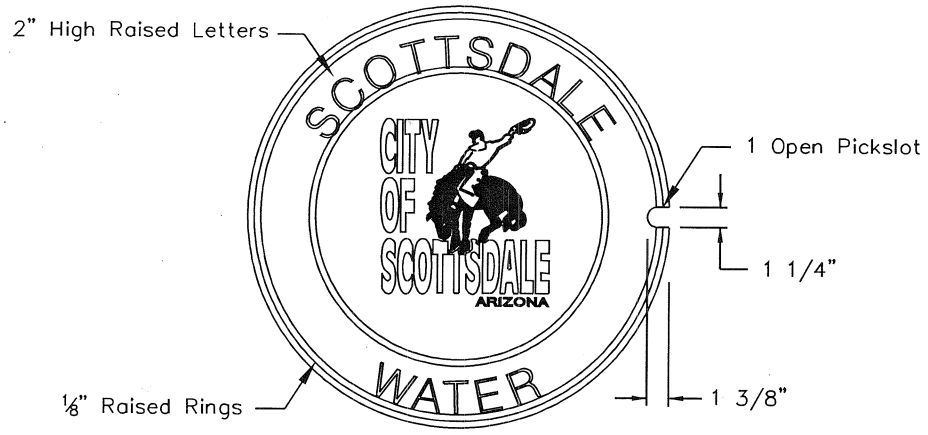
SECTION OF COVER

30" MANHOLE COVER

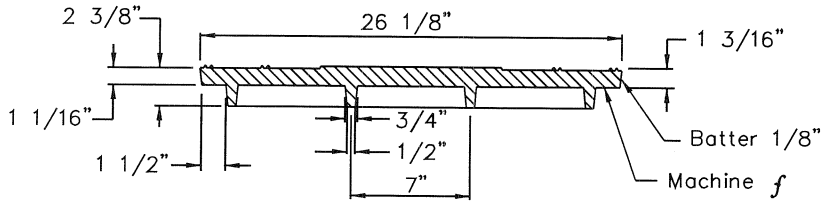
NOTES

1. Material: Cast Gray Iron ASTM A-48, Class 35B, Unpainted
2. The Total Width Of Individual Letters To Be Such That Letters And Words Are Equally Spaced And Balanced.
3. Letters To Be 2" In Height And Raised 1/8" Above Level Of Cover. Type Of Letters To Be Submitted For Approval.
4. Weight Of Castings Shall Be No More Than 2% Less Than Weight Specified. Castings Shall Conform To M.A.G. Section 787.

DETAIL NO. 2320	City of Scottsdale Standard Details	APPROVED BY: Scottsdale Standards & Specifications Committee	NON-POTABLE WATER MANHOLE COVER	DETAIL NO. 2320

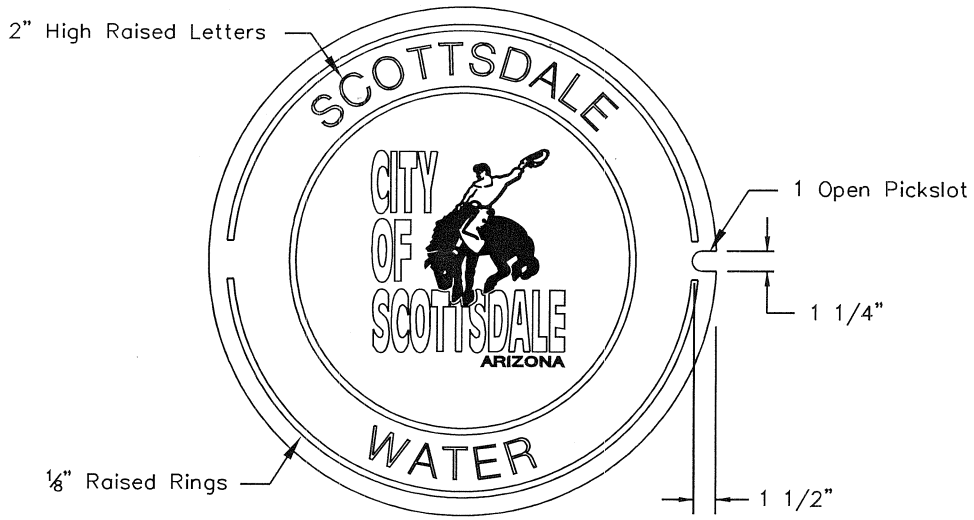


TOP VIEW

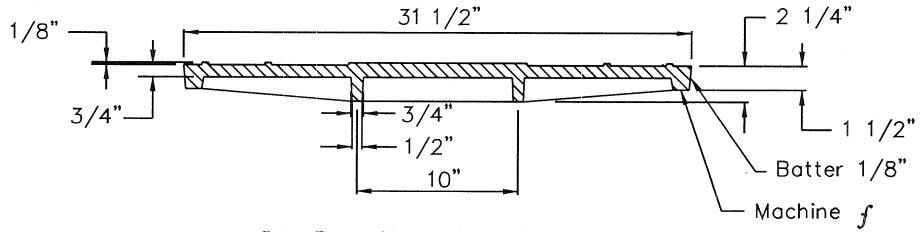


SECTION OF COVER

24" MANHOLE COVER



TOP VIEW



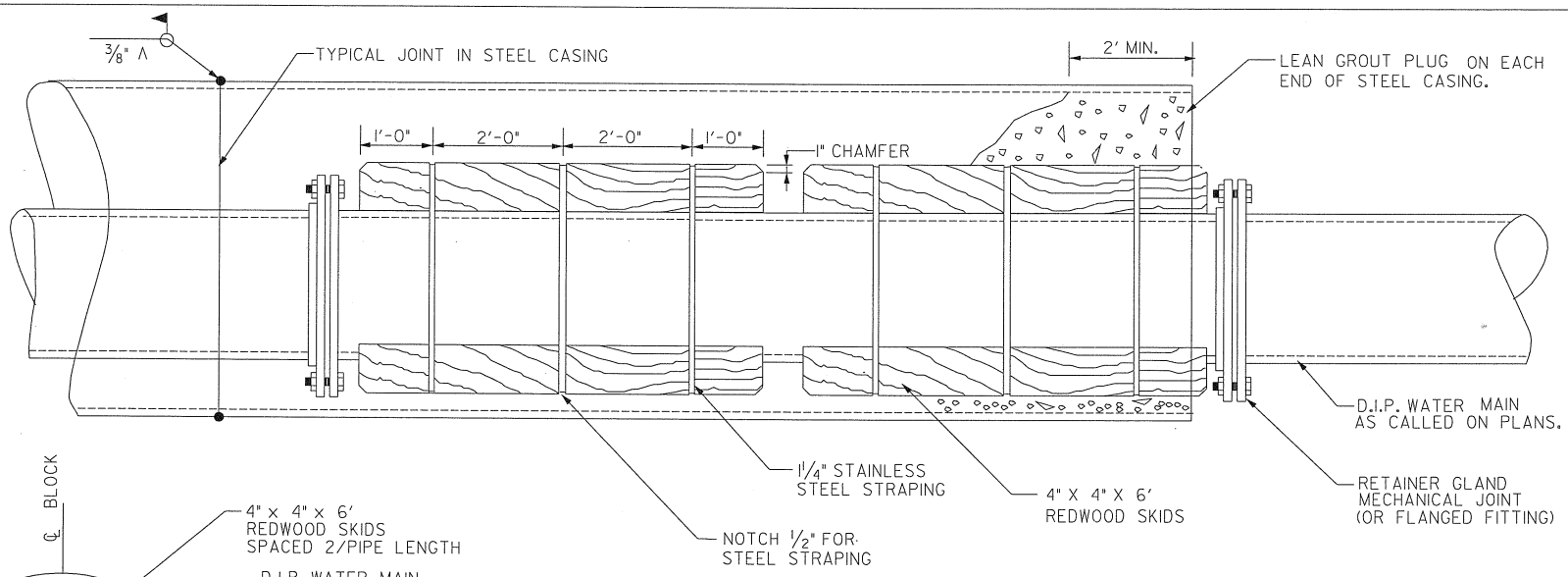
SECTION OF COVER

30" MANHOLE COVER

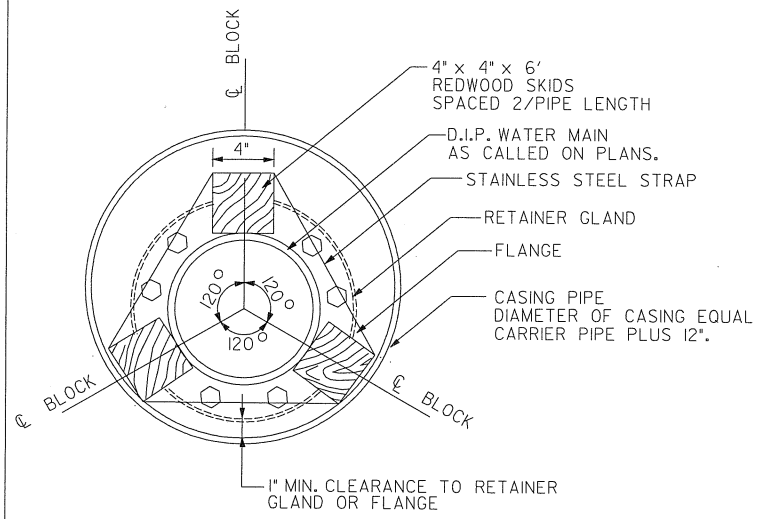
NOTES

1. Material: Cast Gray Iron ASTM A-48, Class 35B, Unpainted
2. The Total Width Of Individual Letters To Be Such That Letters And Words Are Equally Spaced And Balanced.
3. Letters To Be 2" In Height And Raised 1/8" Above Level Of Cover. Type Of Letters To Be Submitted For Approval.
4. Weight Of Castings Shall Be No More Than 2% Less Than Weight Specified. Castings Shall Conform To M.A.G. Section 787.

DETAIL NO. 2321	City of Scottsdale Standard Details	APPROVED BY: Scottsdale Standards & Specifications Committee	WATER MANHOLE COVER	DETAIL NO. 2321



TYPICAL LONGITUDINAL SECTION



TYPICAL SECTION

NOTES

- ALTERNATE SIZE REDWOOD BLOCKING MAY BE USED, SUBJECT TO APPROVAL BY THE ENGINEER. MINIMUM CLEARANCE SHALL BE MAINTAINED.
- TWO BLOCK ANGLES COULD VARY TO MAINTAIN REQUIRED CLEARANCES AND PROPER INSTALLATION.
- STEEL CASING PIPE TO BE (3/8" WALL THICKNESS) MINIMUM.
- ALL STEEL CASING SHALL BE WELDED CONTINUOUSLY AT ALL JOINTS
- ALL STEEL SHALL BE STRUCTURAL GRADE PER A.S.T.M. A283 OR A.S.T.M. A36 STEEL.
- ALL D.I.P PIPE SHALL HAVE RESTRAINED OR FLANGED JOINTS AS CALLED FOR ON PLANS

ORIGINAL SIGNATURE ON FILE AT THE CITY OF TEMPE

APPROVED: _____ _____
CITY ENGINEER DATE

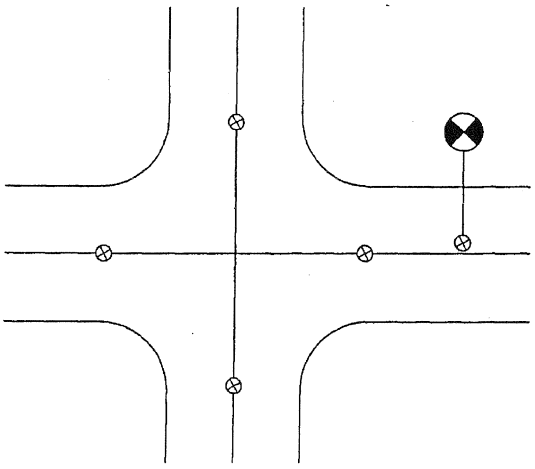
CITY OF TEMPE PUBLIC WORKS DEPARTMENT	STANDARD CASING DETAIL	DETAIL T-215 REVISED 1998

STANDARD DETAIL G-607

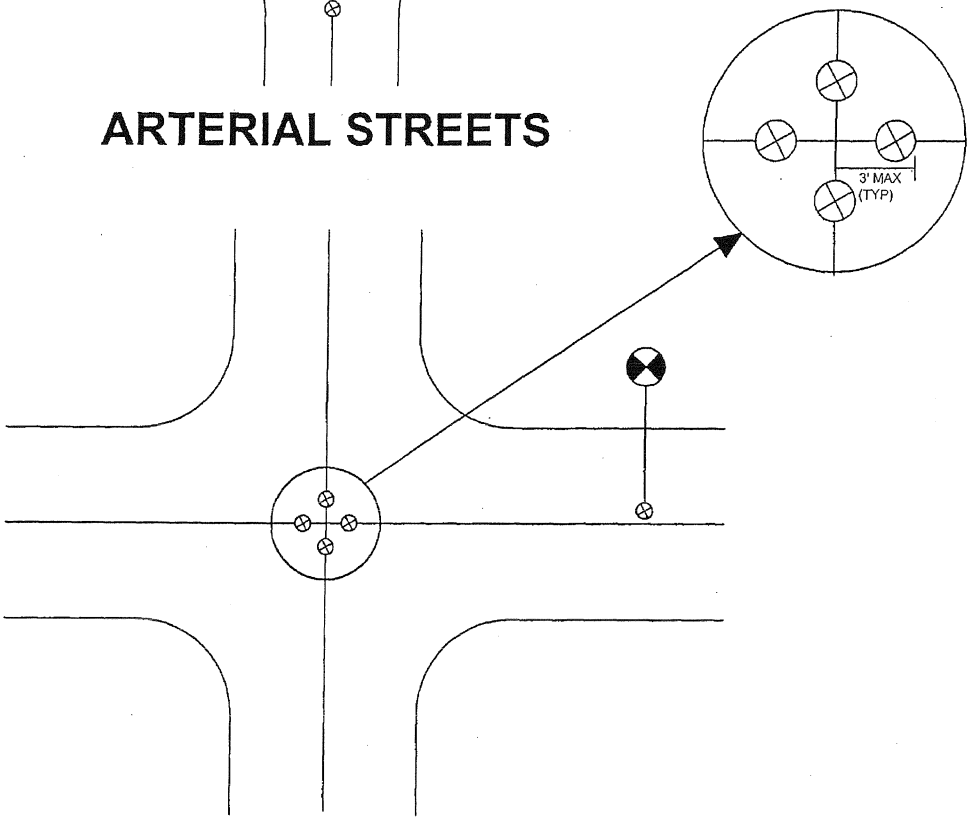
CITY OF GLENDALE
ENGINEERING

GLENDALE

TYPICAL VALVE LOCATIONS



ARTERIAL STREETS



LOCAL AND COLLECTOR STREETS

APPROVED BY: Larry J. Broyles
CITY ENGINEER

DATE 6/28/02

REVISED : JUNE 2002

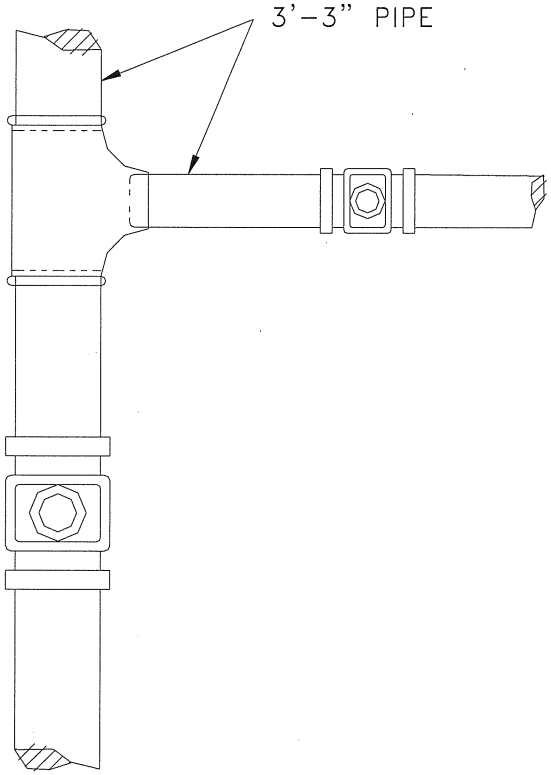
PEORIA DETAIL 341

TYPICAL VALVE LOCATION

APPROVALS:

CITY ENGINEER DATE

UTILITIES DIRECTOR DATE

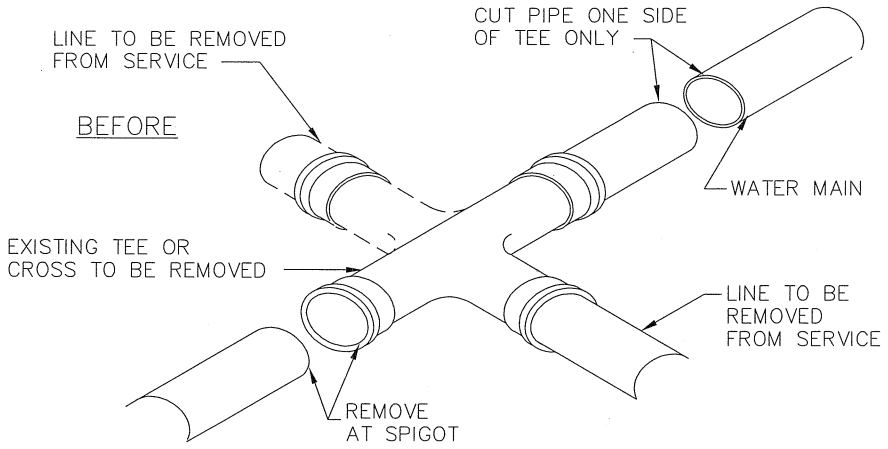


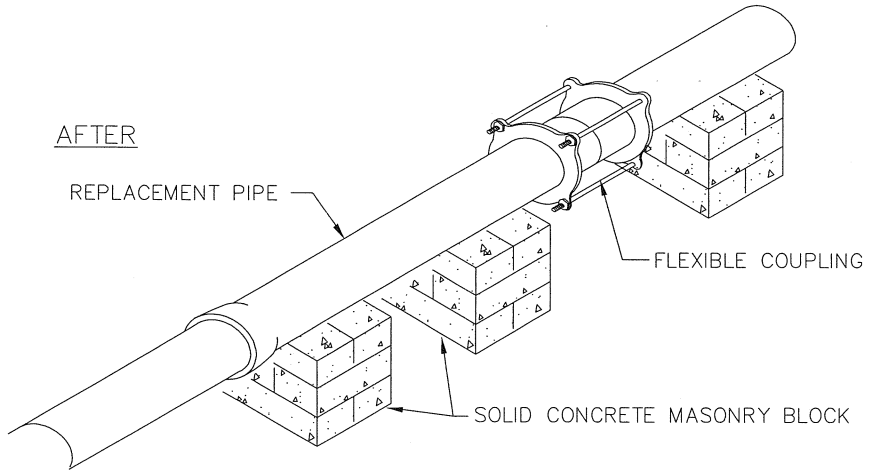
I:\GUIDE\DETAILS\341.DWG

07/14/98

NOTES

1. REPLACE PIPE MATERIAL SHALL BE IN KIND OR DUCTILE IRON.
2. WHERE POSSIBLE, ONE END OF THE REPLACEMENT PIPE SECTION SHALL CONNECT TO AN EXISTING BELL OR SPIGOT.
3. FLEXIBLE COUPLING SHALL BE THE CAST IRON TYPE AND SPECIFICALLY DESIGNED FOR USE ON THE PIPE SIZE AND MATERIAL(S) BEING CONNECTED. USE OF FULL CIRCLE REPAIR CLAMPS IS PROHIBITED.
4. THE NEW REPLACEMENT PIPE SECTION SHALL BE ADEQUATELY DRY BLOCKED PRIOR TO BACKFILLING.
5. BACKFILLING SHALL NOT BEGIN UNTIL LINE PRESSURE IS RESTORED AND CONNECTIONS INSPECTED FOR LEAKAGE BY WATER DEPARTMENT PERSONNEL.
6. DRY BLOCKS SHALL BE STANDARD SIZE SOLID MASONRY CONCRETE BLOCKS. (ASTM C-139)
7. REPLACEMENT PIPE SHALL BE CLEANED IN ACCORDANCE WITH SECTION 611.1.

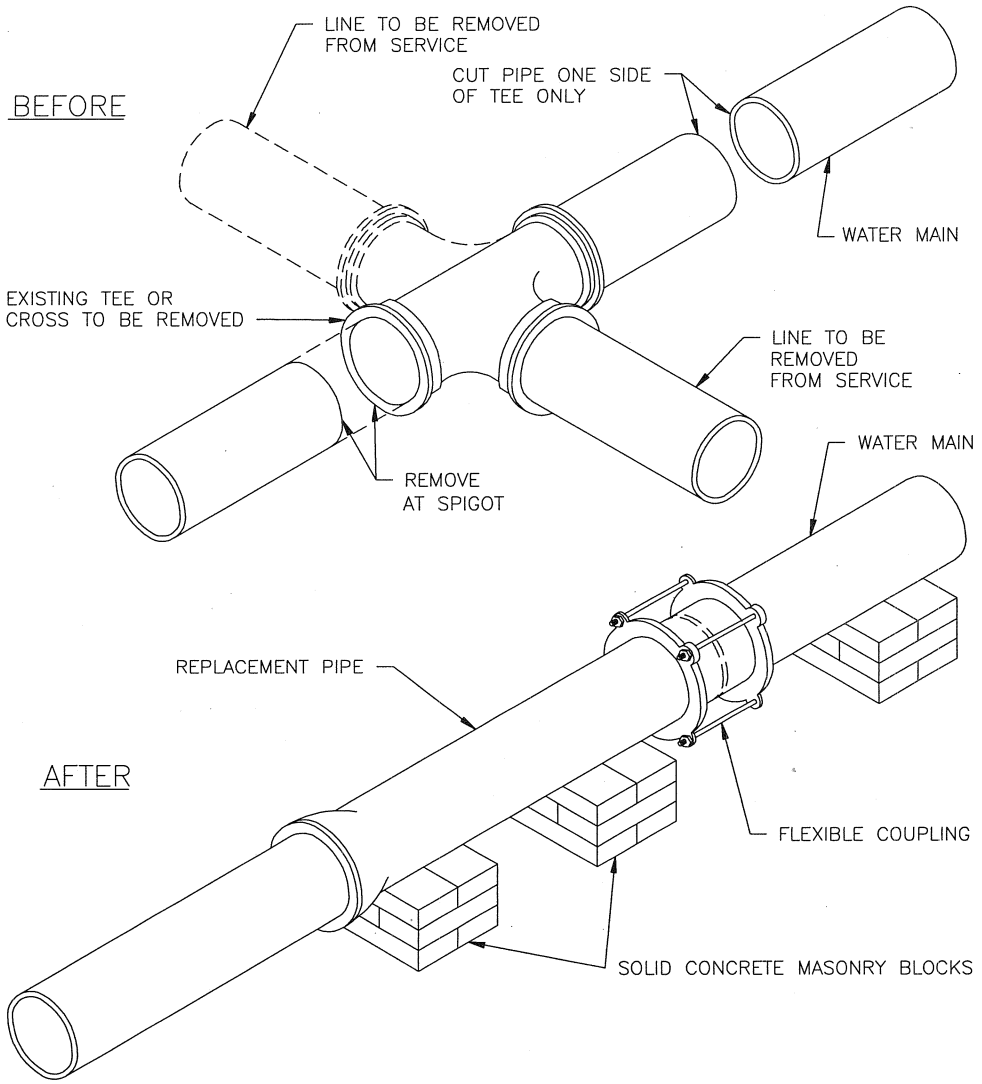




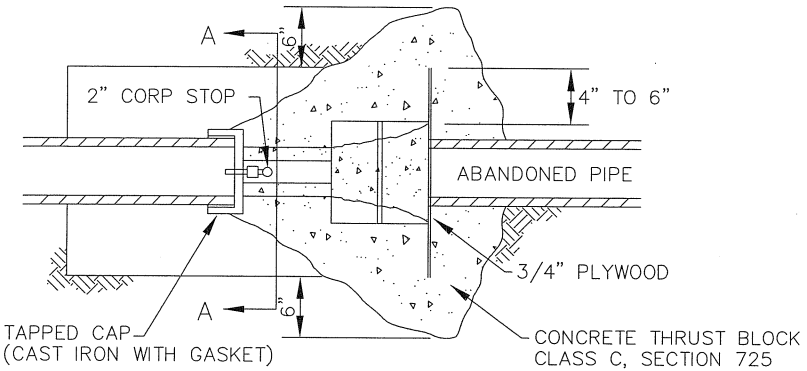
DETAIL NO. G-3303	CITY OF GOODYEAR STANDARD DETAIL	APPROVED BY: Goodyear Standards and Policies Committee 7/97	WATERLINE CUT OUT (TEES & CROSSES) FOR 12" DIA. MAIN AND SMALLER	DETAIL NO. G-3303

NOTES:

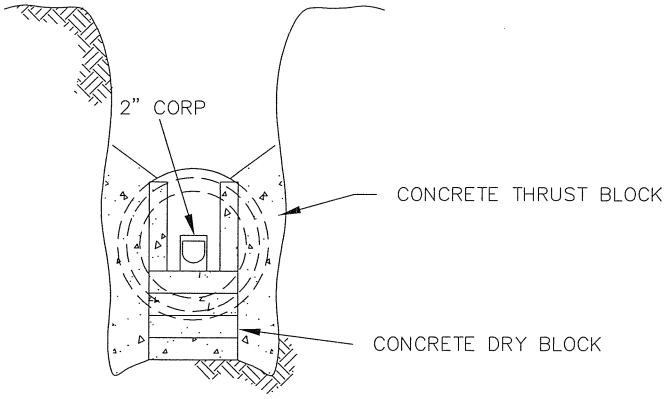
1. REPLACEMENT PIPE MATERIAL SHALL BE IN KIND OR DUCTILE IRON.
2. WHERE POSSIBLE, ONE END OF THE REPLACEMENT PIPE SECTION SHALL CONNECT TO AN EXISTING BELL OR SPIGOT.
3. FLEXIBLE COUPLING SHALL BE THE CAST IRON TYPE AND SPECIFICALLY DESIGNED FOR USE ON THE PIPE SIZE AND MATERIAL(S) BEING CONNECTED. USE OF FULL CIRCLE REPAIR CLAMPS IS PROHIBITED.
4. THE NEW REPLACEMENT PIPE SECTION SHALL BE ADEQUATELY DRY BLOCKED PRIOR TO BACKFILLING.
5. BACKFILLING SHALL NOT BEGIN UNTIL LINE PRESSURE IS RESTORED AND CONNECTIONS INSPECTED FOR LEAKAGE BY WATER DEPARTMENT PERSONNEL.
6. DRY BLOCKS SHALL BE STANDARD SIZE SOLID MASONRY CONCRETE BLOCKS. (ASTM C-139)
7. REPLACEMENT PIPE SHALL BE CLEANED IN ACCORDANCE WITH SECTION 611.1.

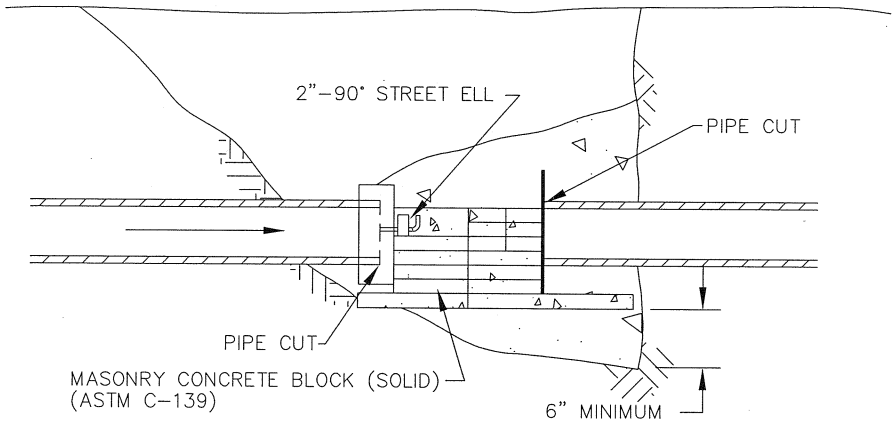


DETAIL NO.					DETAIL NO.
P1344	City of Phoenix STANDARD DETAIL	WATERLINE CUT OUT (TEES & CROSSES) FOR 12" DIA. MAIN AND SMALLER	APPROVED Kenny W Harris CITY ENGINEER	07-09-92 DATE	P1344



PLAN VIEW



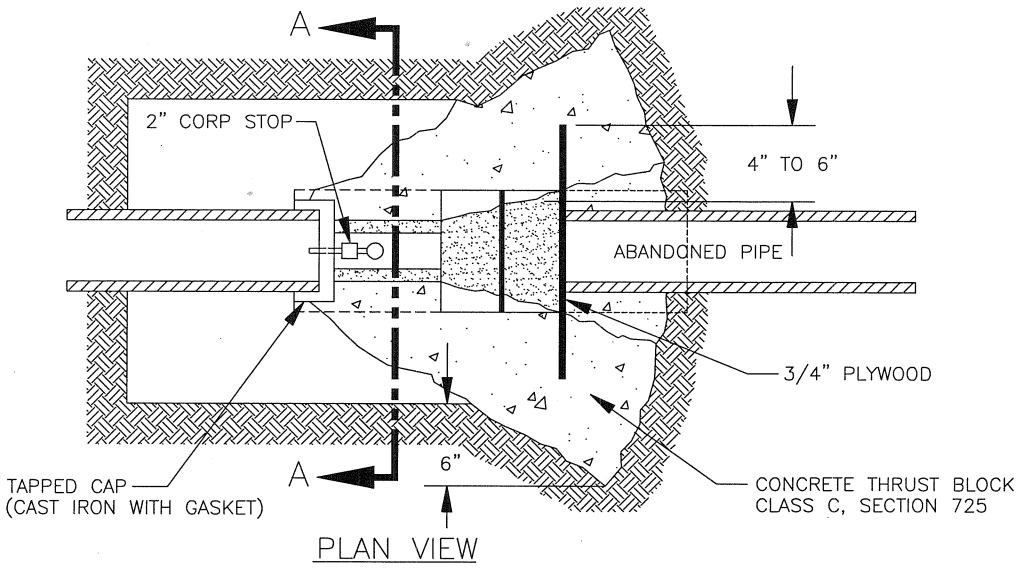


PROFILE VIEW

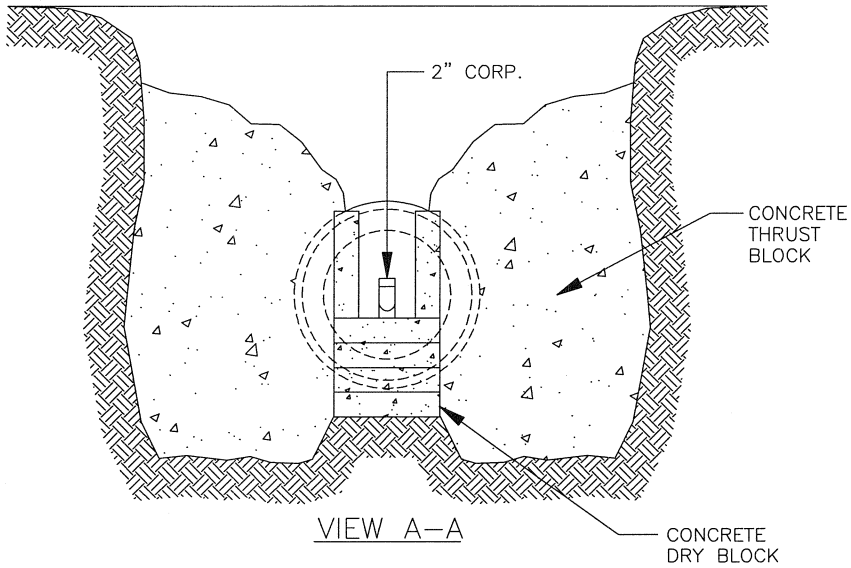
NOTES

1. CUT AND PLUGS MUST BE ADEQUATELY "DRY BLOCKED".
2. DRY BLOCKS SHALL BE STANDARD SIZE SOLID MASONRY CONCRETE BLOCKS. (ASTM C-139).
3. THE QUANTITY AND ARRANGEMENT OF THE BLOCKING MUST WITHSTAND LINE PRESSURE BY HOLDING THE CAP OR PLUG IN POSITION.
4. DRY BLOCKING SHALL BE PROPERLY SHIMMED TIGHT AND SECURE AGAINST THE CAP BEFORE LINE PRESSURE IS RESTORED.
5. CONCRETE THRUST BLOCKS SHALL NOT BE POURED UNTIL LINE PRESSURE IS RESTORED AND THE CAP OR PLUG IS INSPECTED FOR LEAKAGE.
6. CONCRETE SHALL NOT BE POURED OVER ANY PORTION OF THE ABANDONED PIPE.
7. MINIMUM THRUST BLOCK AREA PER M.A.G. DETAIL 380.
8. WHERE A 4" OR LARGER LINE IS SPECIFIED TO BE ABANDONED, CUT AND PLUG SHOULD OCCUR AT THE SUPPLY MAIN TO AVOID CREATING AN UNUSED DEADEND LINE.

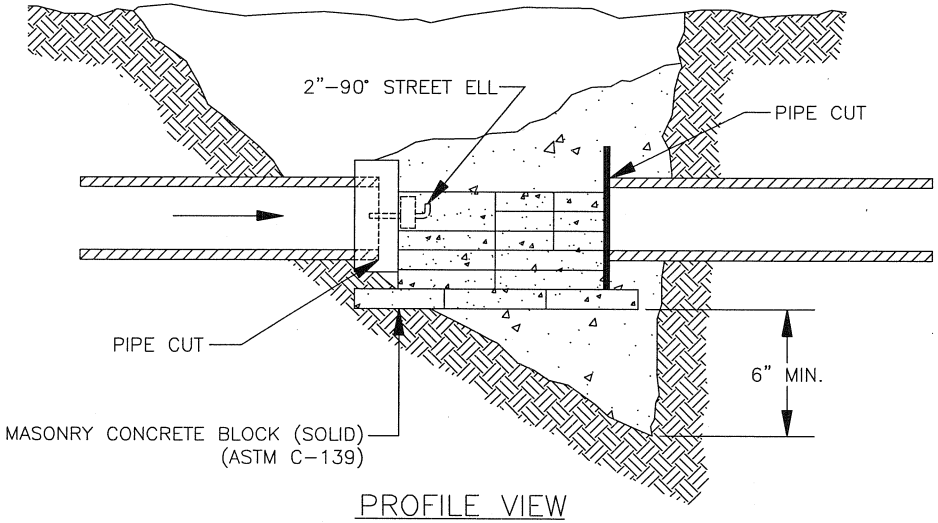
DETAIL NO. G-3305	CITY OF GOODYEAR STANDARD DETAIL	APPROVED BY: Goodyear Standards and Policies Committee 7/97	WATERLINE-CUT AND PLUG FOR 12" DIA. MAIN AND SMALLER	DETAIL NO. G-3305



PLAN VIEW



VIEW A–A

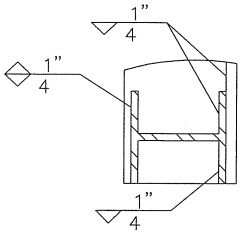


PROFILE VIEW

NOTES:

1. CUT AND PLUGS MUST BE ADEQUATELY "DRY BLOCKED".
2. DRY BLOCKS SHALL BE STANDARD SIZE SOLID MASONRY CONCRETE BLOCKS. (ASTM C–139)
3. THE QUANTITY AND ARRANGEMENT OF THE BLOCKING MUST WITHSTAND LINE PRESSURE BY HOLDING THE CAP OR PLUG IN POSITION.
4. DRY BLOCKING SHALL BE PROPERLY SHIMMED TIGHT AND SECURE AGAINST THE CAP BEFOR LINE PRESSURE IS RESTORED.
5. CONCRETE THRUST BLOCKS SHALL NOT BE POURED UNTIL LINE PRESSURE IS RESTORED AND THE CAP OR PLUG IS INSPECTED FOR LEAKAGE.
6. CONCRETE SHALL NOT BE POURED OVER ANY PORTION OF THE ABANDONED PIPE.
7. MINIMUM THRUST BLOCK AREA PER M.A.G. DETAIL 380.
8. WHERE A 4" OR LARGER LINE IS SPECIFIED TO BE ABANDONED, THE CUT AND PLUG SHOULD OCCUR AT THE SUPPLY MAIN TO AVOID CREATING AN UNUSED DEADEND LINE.

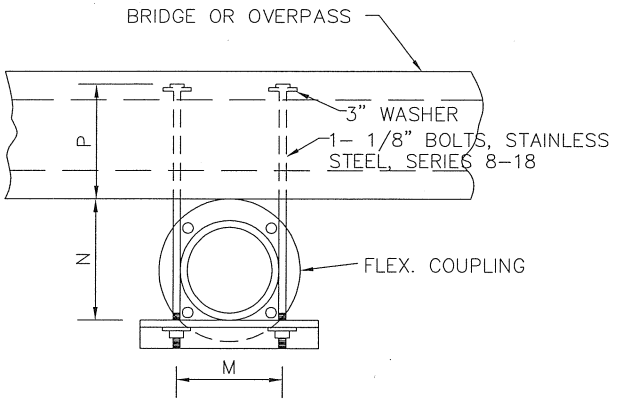
DETAIL NO.			APPROVED	DETAIL NO.
P1343	City of Phoenix STANDARD DETAIL	WATERLINE – CUT AND PLUG FOR 12" DIA. MAIN AND SMALLER	Kenny W Harris CITY ENGINEER — 5-31-94 DATE	P1343

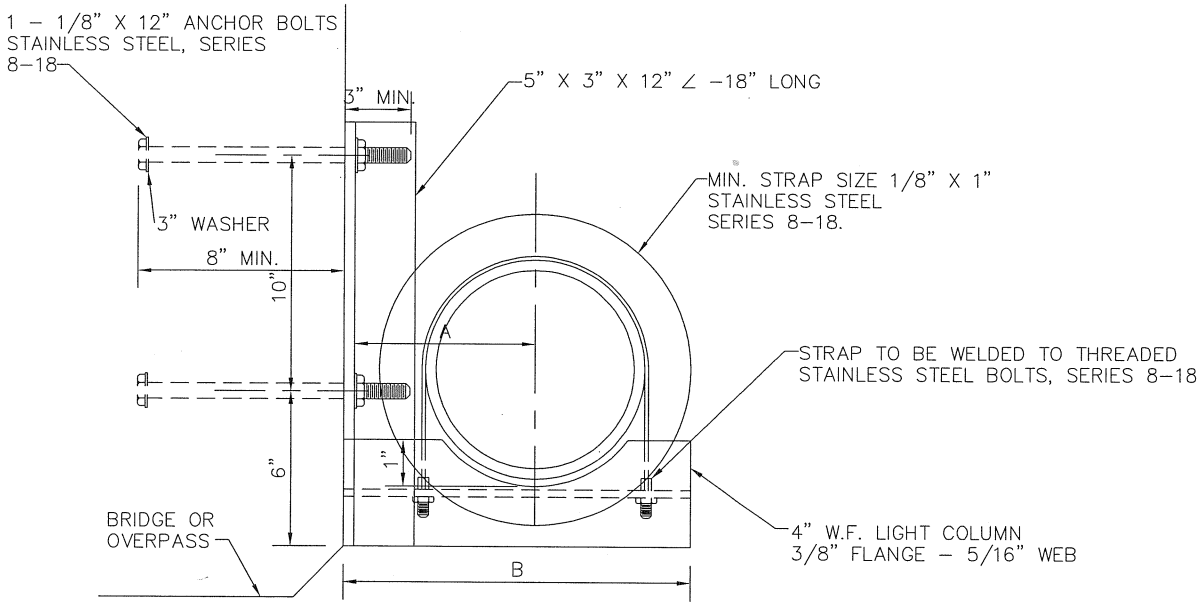


SECTION X–X

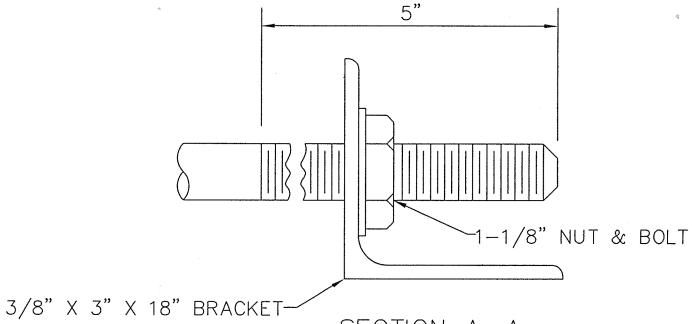
PIPE SIZE	A	B
8"	8"	15"
10"	9"	17"
12"	10"	19"

NOTE
1. MINIMUM 2 SUPPORTS PER JOINT OF PIPE.
2. ALL NUTS SHALL BE STAINLESS STEEL SERIES 8–18.
3. ALL BOLTS SHALL HAVE A LOCK WASHER UNDER THE NUT.





SIDE SUSPENSION

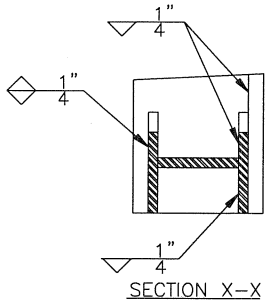


SECTION A–A

PIPE SIZE	M	N	P
8"	10.25"	12"	8"
10"	12.50"	14"	8"
12"	15"	16"	8"

BOTTOM SUSPENSION

DETAIL NO. G-3309	CITY OF GOODYEAR STANDARD DETAIL	APPROVED BY: Goodyear Standards and Policies Committee 7/97	WATER LINE SUSPENSIONS	DETAIL NO. G-3309

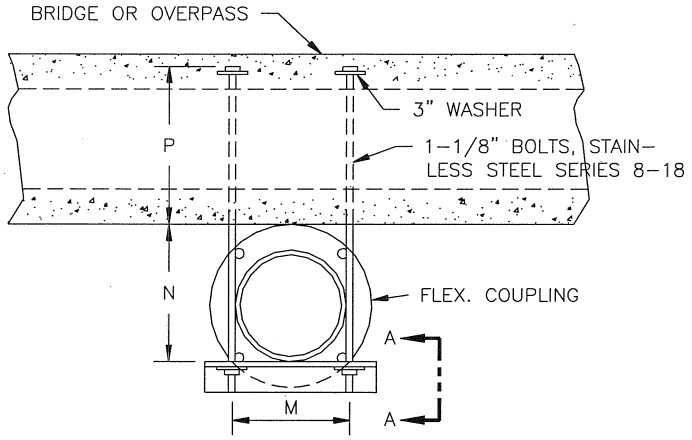


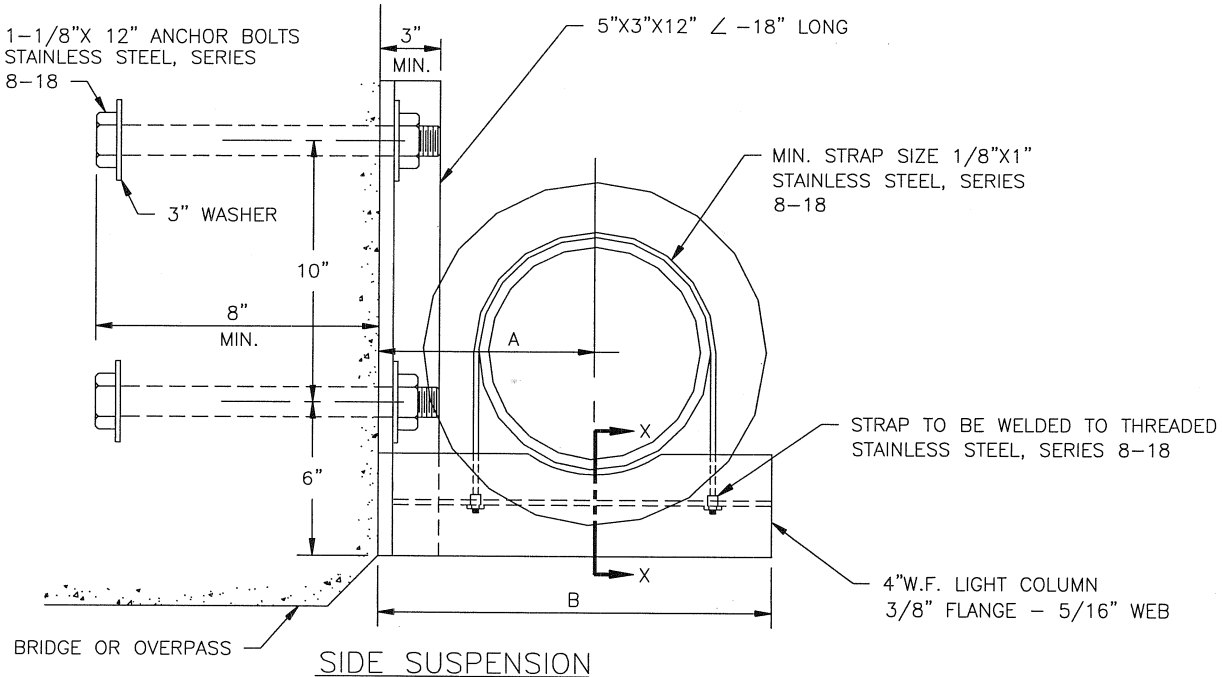
SECTION X–X

PIPE SIZE	A	B
8"	8"	15"
10"	9"	17"
12"	10"	19"

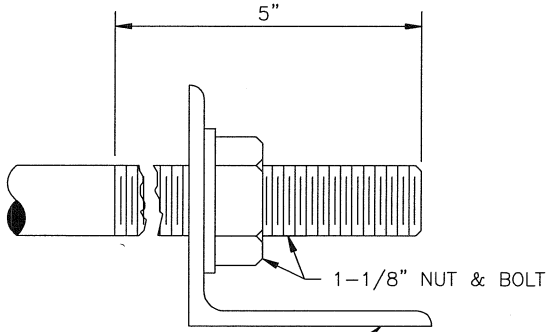
NOTES:

1. MINIMUM 2 SUPPORTS PER JOINT OF PIPE.
2. ALL NUTS SHALL BE STAINLESS STEEL SERIES 8–18.
3. ALL BOLTS SHALL HAVE A LOCK WASHER UNDER THE NUT.





SIDE SUSPENSION

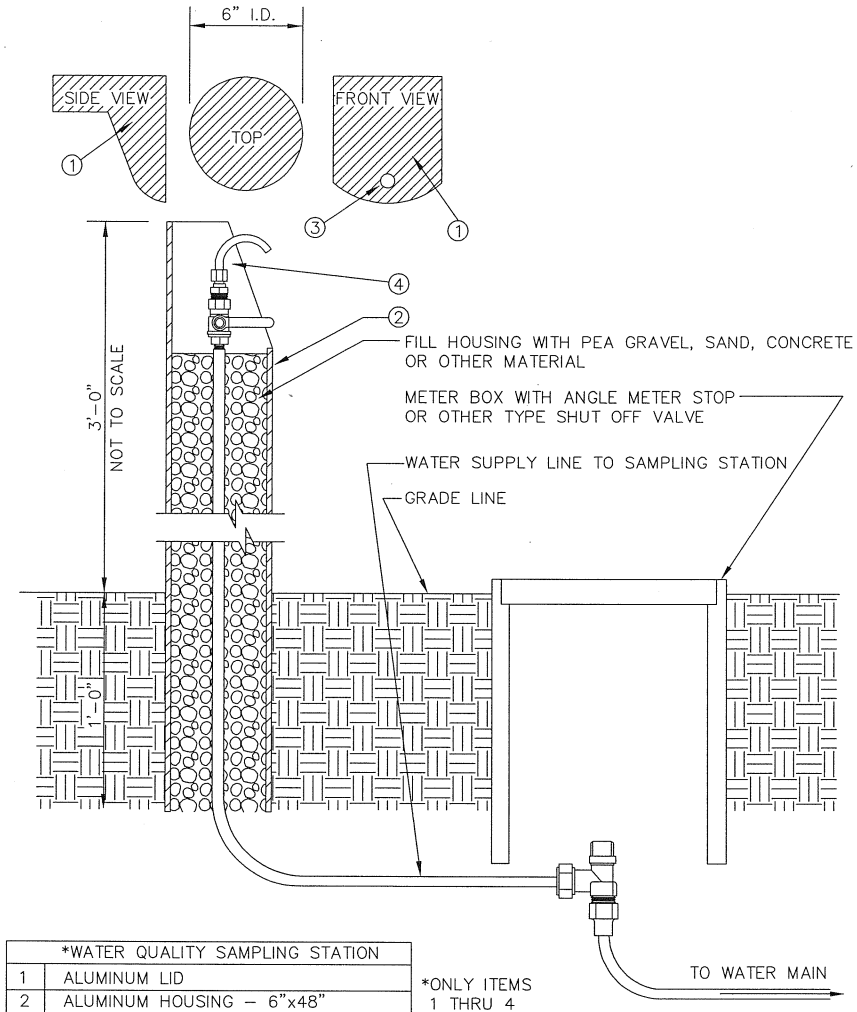


SECTION A–A

PIPE SIZE	M	N	P
8"	10.25"	12"	8"
10"	12.5"	14"	8"
12"	15"	16"	8"

BOTTOM SUSPENSION

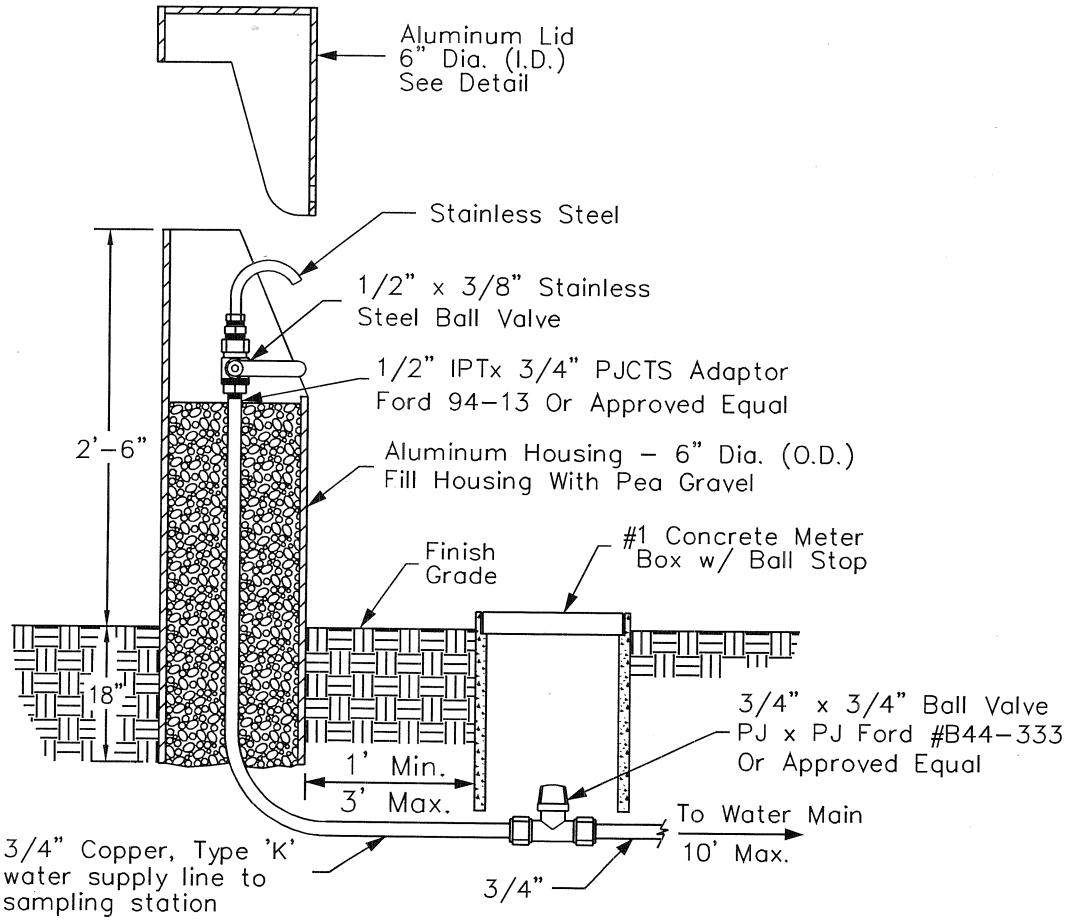
DETAIL NO.			APPROVED	DETAIL NO.
P1395	City of Phoenix STANDARD DETAIL	WATER LINE SUSPENSIONS	CITY ENGINEER — 07-09-92 DATE	P1395



*WATER QUALITY SAMPLING STATION	
1	ALUMINUM LID
2	ALUMINUM HOUSING – 6"x48"
3	FLUSH MOUNTED LOCK
4	BALL VALVE, 1/2"x3/8", 400 P.S.I.

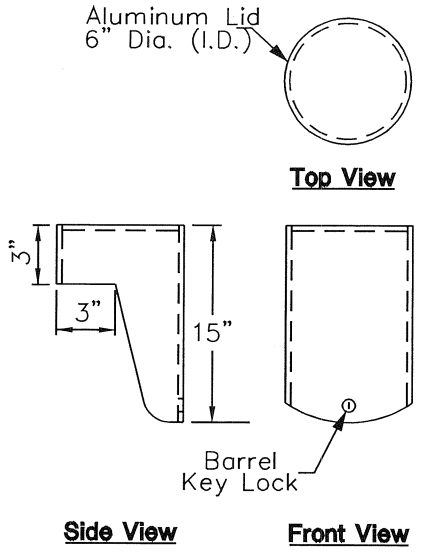
*ONLY ITEMS 1 THRU 4 INCLUDED

DETAIL NO. G-3370	CITY OF GOODYEAR STANDARD DETAIL	APPROVED BY: Goodyear Standards and Policies Committee 7/97	WATER QUALITY SAMPLING STATION	DETAIL NO. G-3370



TYPICAL INSTALLATION

N.T.S.



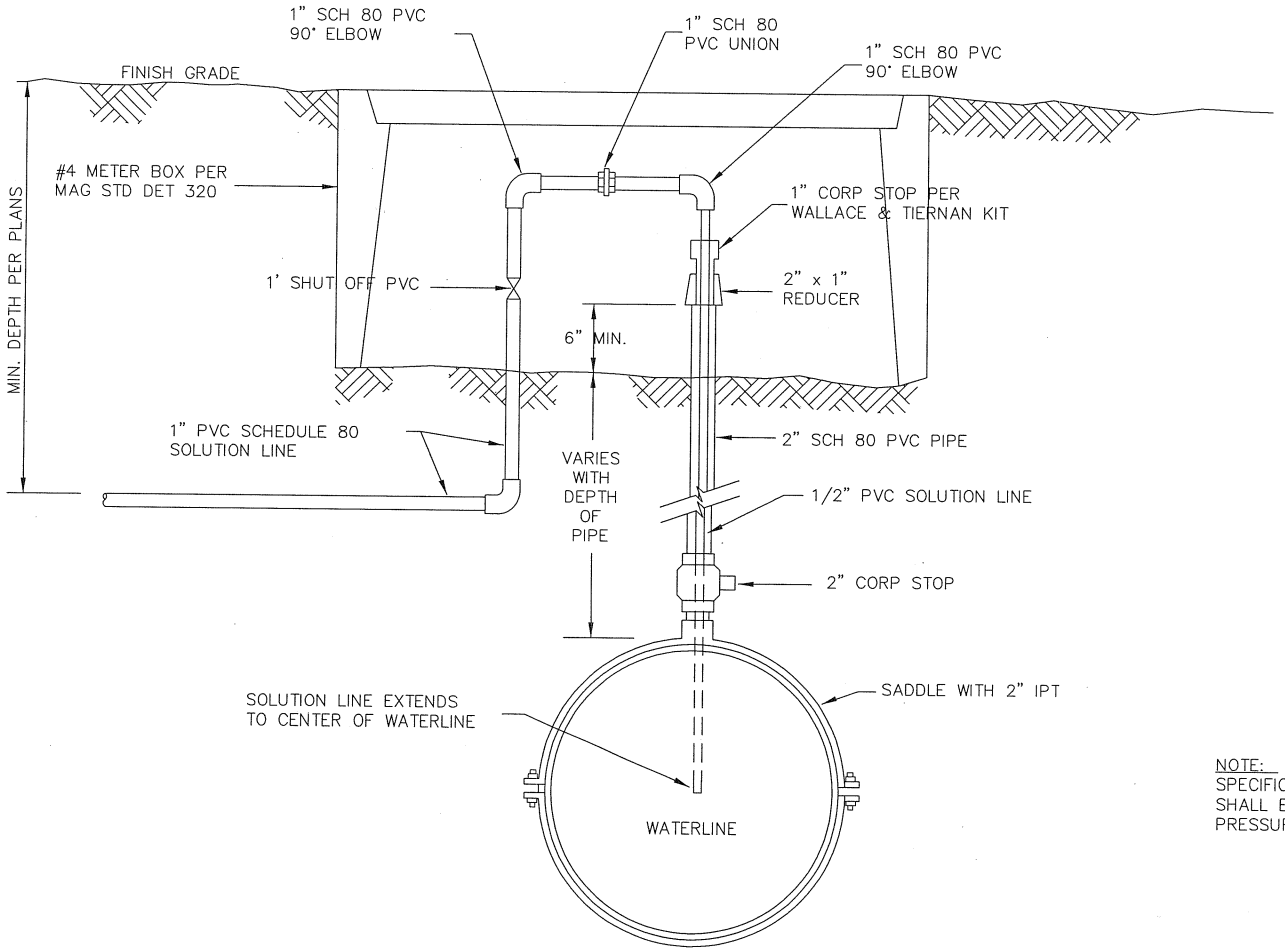
LID DETAILS

N.T.S.

NOTES:

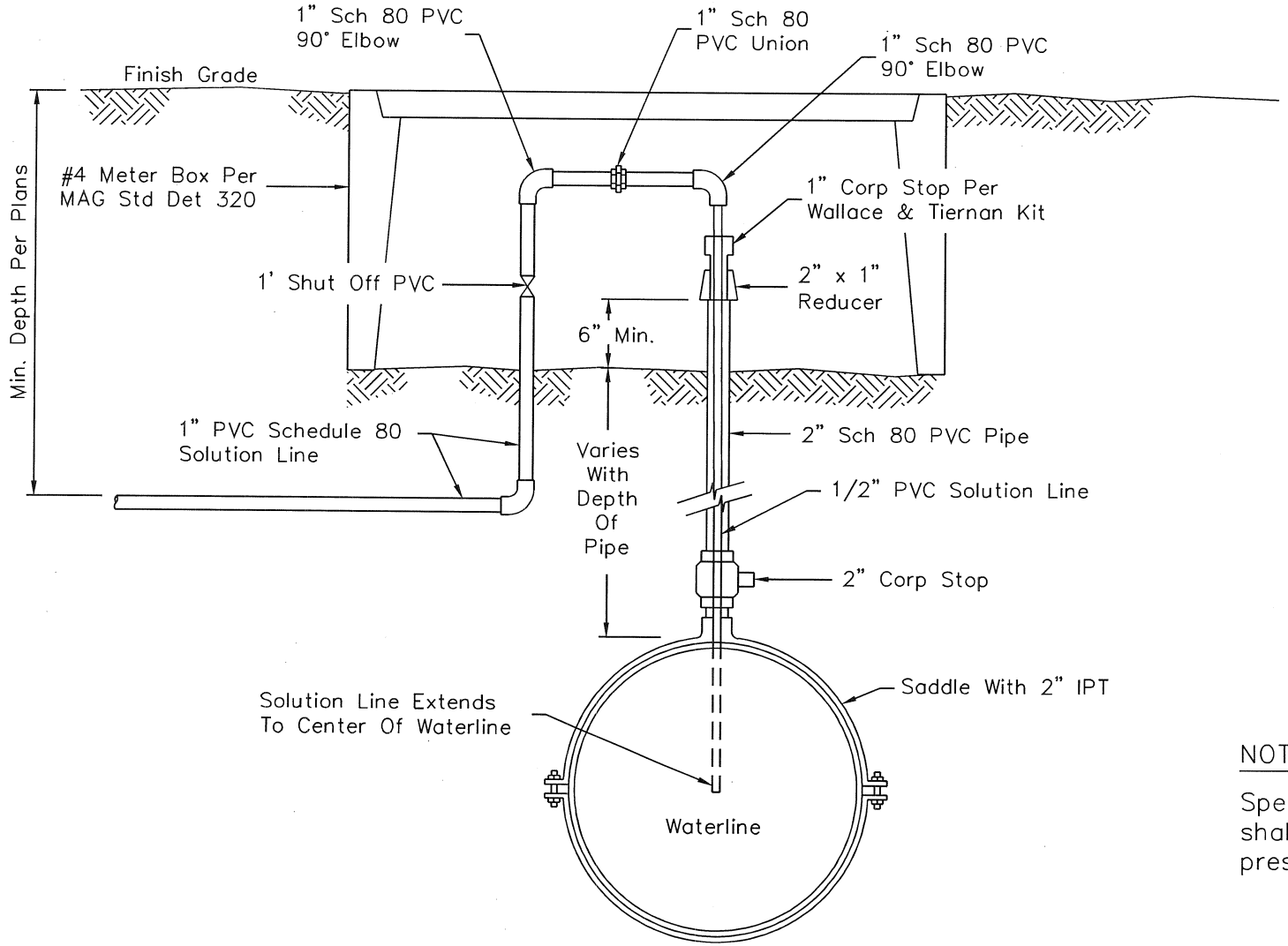
1. Water Quality Sampling Station to be Koralean or approved equal.
2. Keys to locks shall be delivered to City of Scottsdale Water Quality Department upon acceptance.

DETAIL NO. 2349	City of Scottsdale Standard Details	APPROVED BY: Scottsdale Standards & Specifications Committee	WATER QUALITY SAMPLING STATION	DETAIL NO. 2349



NOTE:
SPECIFICATIONS ON ALL FITTINGS SHALL EXCEED THE MAXIMUM PRESSURES OF THE SYSTEM.

DETAIL NO. G-3315	CITY OF GOODYEAR STANDARD DETAIL	APPROVED BY: Goodyear Standards and Policies Committee 7/97	CHLORINE INJECTION TAP FOR UNDERGROUND WATERLINE	DETAIL NO. G-3315

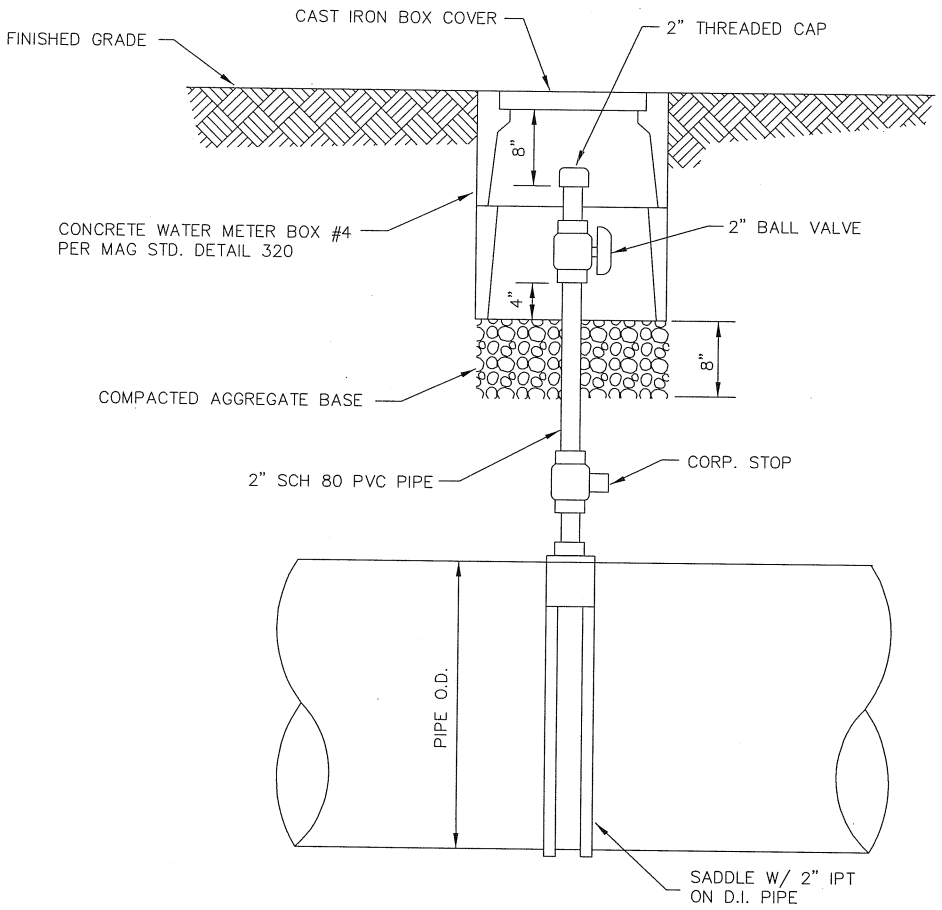


NOTE:

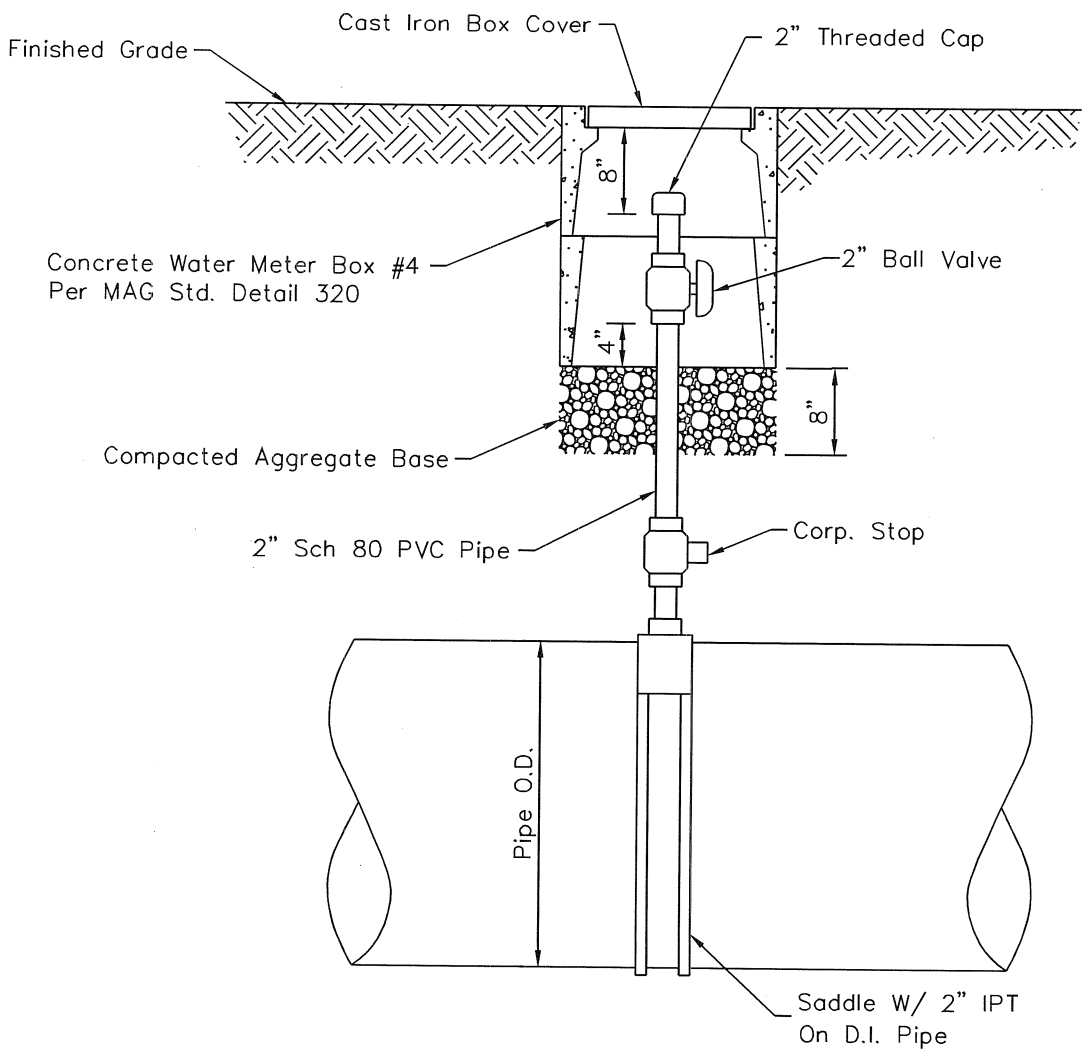
Specifications on all fittings shall exceed the maximum pressures of the system.

REVISED 3/11/94

DETAIL NO. 2332	City of Scottsdale Standard Details	APPROVED BY: Scottsdale Standards & Specifications Committee	CHLORINE INJECTION TAP FOR UNDERGROUND WATERLINES	DETAIL NO. 2332

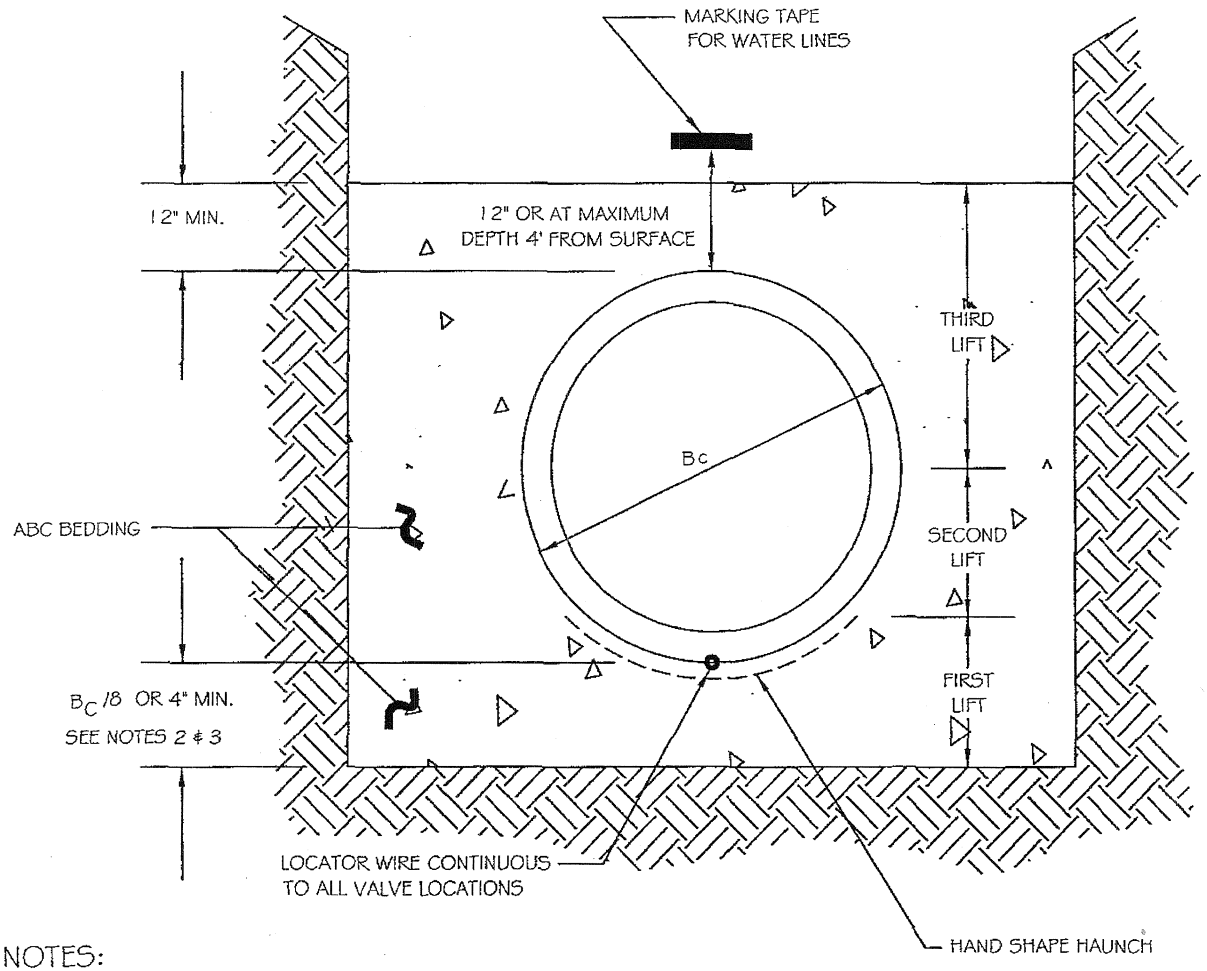


DETAIL NO. G-3316	CITY OF GOODYEAR STANDARD DETAIL	APPROVED BY: Goodyear Standards and Policies Committee 7/97	TAP FOR FUTURE CHLORINE INJECTION	DETAIL NO. G-3316



REVISED 1/4/93

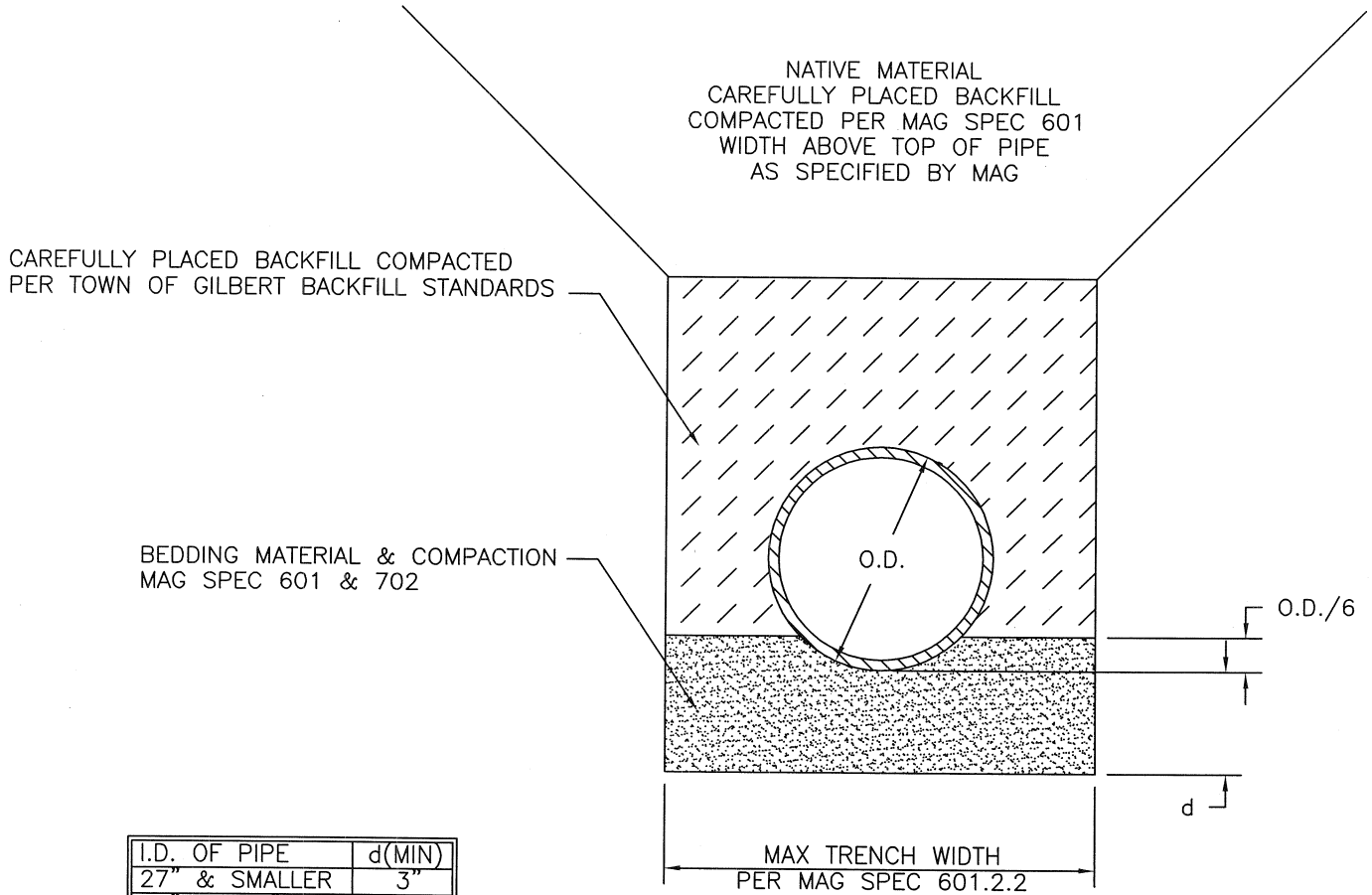
DETAIL NO. 2333	City of Scottsdale Standard Details	APPROVED BY: Scottsdale Standards & Specifications Committee	TAP FOR FUTURE CHLORINE INJECTION	DETAIL NO. 2333



NOTES:

1. TRENCH WIDTH IN ACCORDANCE WITH MAG STD. TABLE 601-1.
2. MINIMUM 4" FOR PIPES 12" OR SMALLER.
3. MINIMUM 6" FOR PIPES LARGER THAN 12".

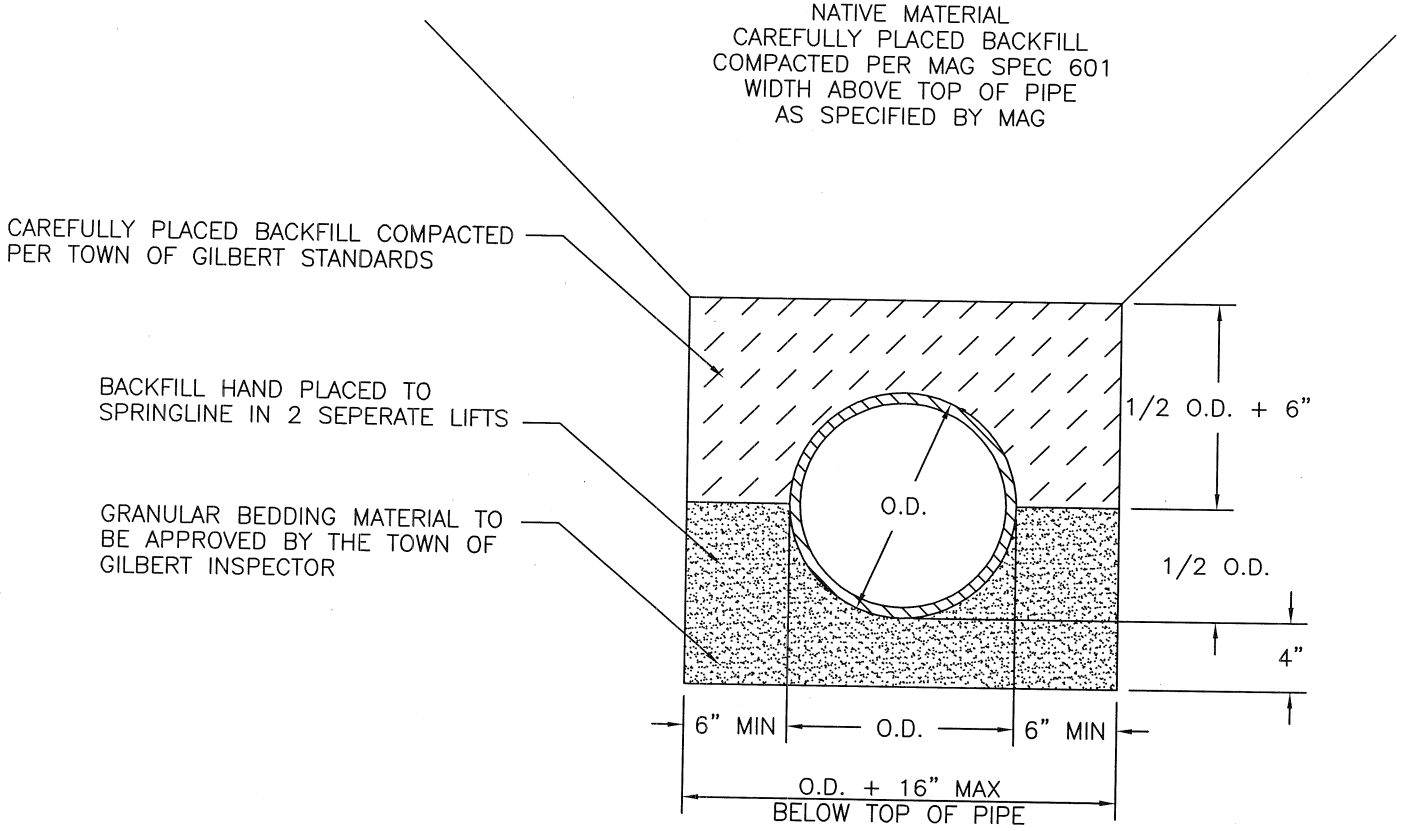
DETAIL NO.					DETAIL NO.
C-308	CITY OF CHANDLER STANDARD DETAIL	PVC WATER PIPE BEDDING DETAIL	APPROVED: CITY ENGINEER		C-308
NTS			DATE: January 11, 2002		NTS



I.D. OF PIPE	d(MIN)
27" & SMALLER	3"
30" TO 60"	4"
66" & LARGER	6"

CONCRETE PIPE BEDDING DETAIL
CLASS C

DETAIL NO. 84	TOWN OF GILBERT STANDARD DETAIL	BEDDING DETAIL CONCRETE PIPE	REVISED 8/14/01	DETAIL NO. 84



PVC WATER PIPE BEDDING DETAIL
C-900

DETAIL NO. 85	TOWN OF GILBERT STANDARD DETAIL	BEDDING DETAIL C-900 WATER PIPE	REVISED 8/14/01	DETAIL NO. 85

STANDARD DETAIL G-690

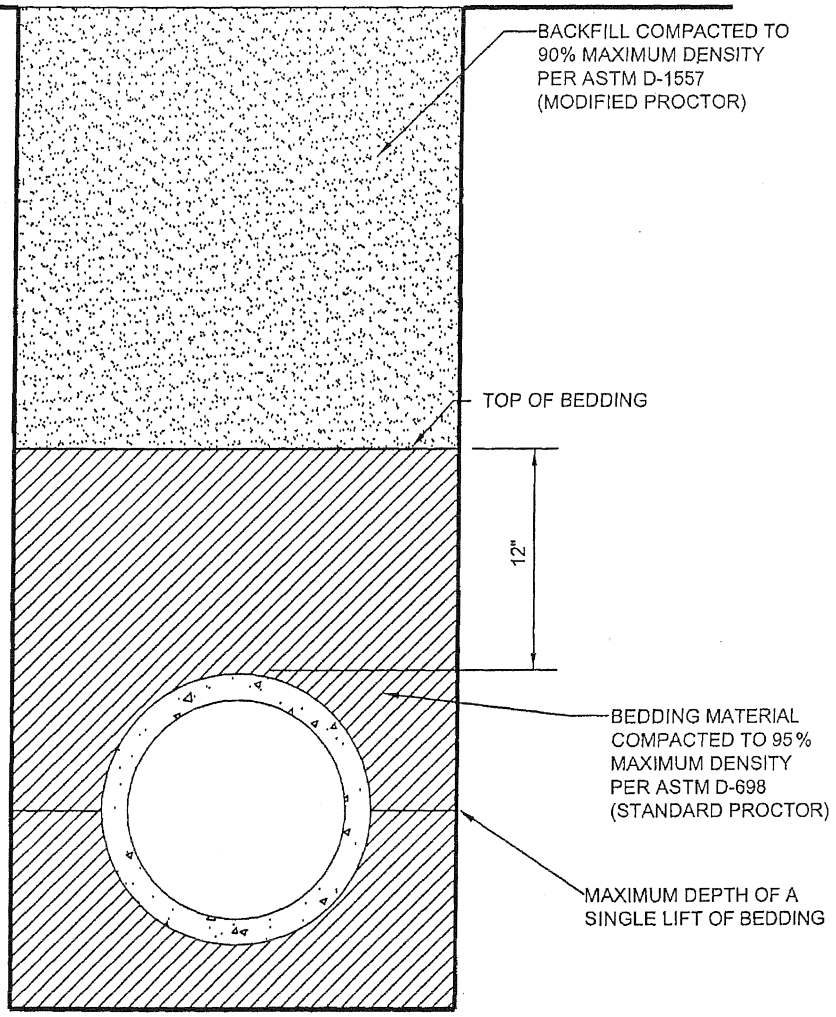
CITY OF GLENDALE
ENGINEERING

BEDDING AND BACKFILL FOR UNDERGROUND FACILITIES

GLENDALE

NOTES:

1. BEDDING SHALL BE SHAPED TO CONFORM TO THE BOTTOM OF PIPE PRIOR TO PLACEMENT OF THE PIPE
2. IF ROCK IS ENCOUNTERED IN THE TRENCH BOTTOM, IT SHALL BE OVEREXCAVATED BY 6" AND GRANULAR MATERIAL PLACED WITH MINIMUM COMPACTION.
3. BEDDING TO BE PLACED WITH A MAXIMUM LIFT THICKNESS OF 8"
4. BACKFILL TO BE PLACED WITH A MAXIMUM LIFT THICKNESS OF 12"
5. BEDDING MATERIAL SHALL CONFORM TO M.A.G. SEC. 601
6. WATER CONSOLIDATION SHALL NOT BE PERMITTED FOR THE TRENCH BACKFILL IN CITY OF GLENDALE RIGHTS OF WAY OR EASEMENTS.



APPROVED BY: Harry J Broyles
CITY ENGINEER

6/28/02
DATE

REVISED : JUNE 2002

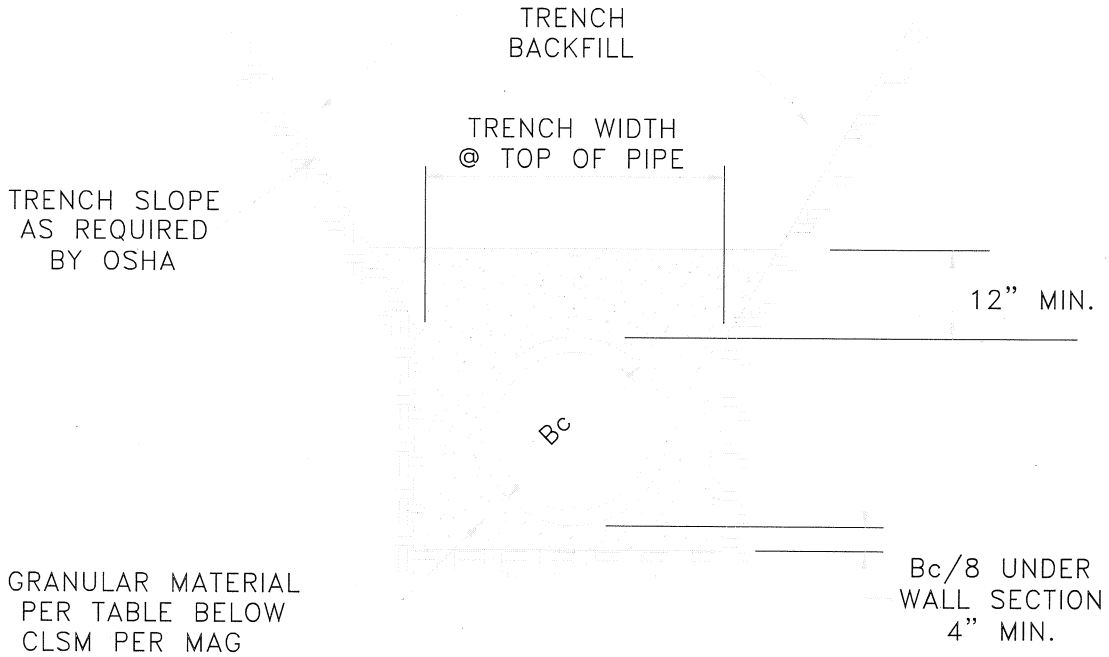
PEORIA DETAIL 406

BEDDING AND BACKFILL FOR PVC PIPELINES

APPROVALS:

CITY ENGINEER DATE

UTILITIES DIRECTOR DATE



BC = OUTSIDE DIAMETER OF WALL SECTION

GRANULAR MATERIAL

SIEVE SIZES (SQUARE OPENINGS)	PERCENTAGE BY WEIGHT PASSING SIEVE
3/8"	100
NO. 4	30–75
NO. 8	20–60
NO. 30	10–40
NO. 200	0–12
P.I. MAX.	5

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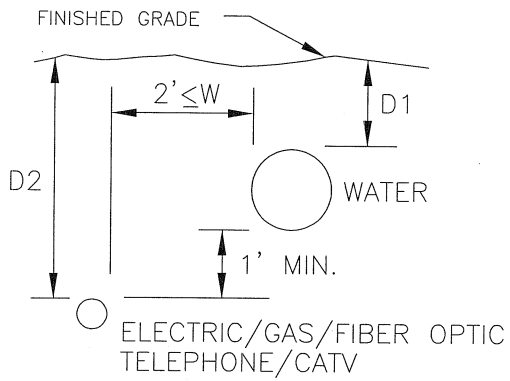
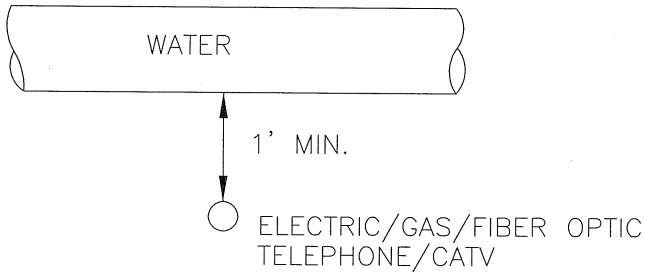
2/20/01

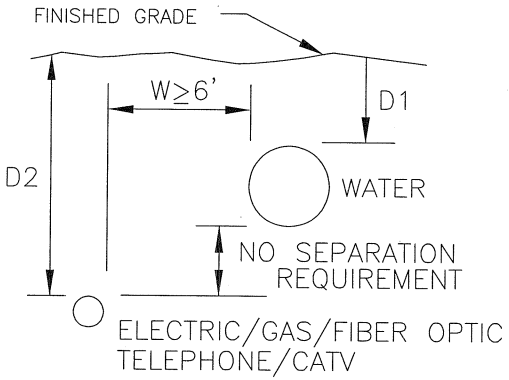




CROSSING

LEGEND

D1= 3'Min. for pipe <12" dia
D1= 4'Min. for pipe ≥12" dia
D2= Minimum Cover
W = Horizontal Separation

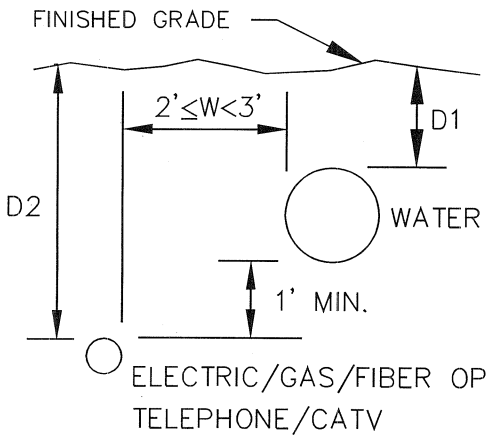


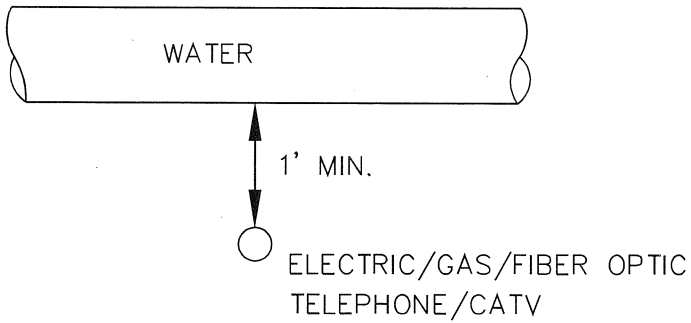
NOTES

1. Electric separation requirements are for primary electric conductors only. For service conductors see plans.

2. Primary electric, gas, telepone, cable TV or fiber optic lines shall not cross above a water line without written approval from the City's Utility Service Division
If this approval is obtained, a utility locator strip and ABC slurry.

DETAIL NO. G-3300	CITY OF GOODYEAR STANDARD DETAIL	APPROVED BY: Goodyear Standards and Policies Committee 7/97	MINIMUM UTILITY SEPARATION REQUIREMENTS	DETAIL NO. G-3300

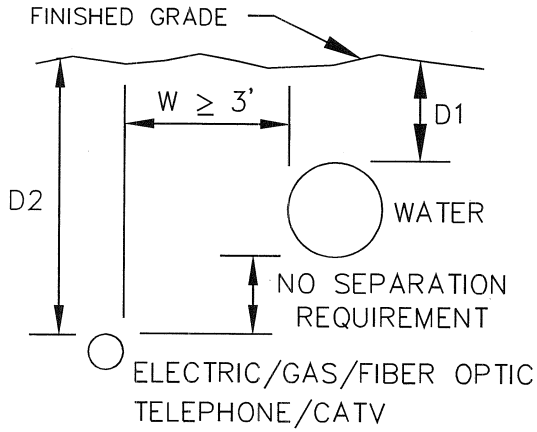




CROSSING

LEGEND

D1 = 3' Min. for pipe < 12" dia
D1 = 4' Min. for pipe ≥ 12" dia
D2 = Minimum Cover
W = Horizontal Separation



NOTES

1. Electric separation requirements are for primary electric conductors only. For service conductors see plans.

2. Primary electric, gas, telephone, cable TV or fiber optic lines shall not cross above a water line without written approval from the City's Water Resources Department. If this approval is obtained, a utility locator strip and ABC slurry conforming to COS Specifications Sec. 601.3.6 are required.

REVISED 8/29/96

DETAIL NO. 2372	City of Scottsdale Standard Details	APPROVED BY: Scottsdale Standards & Specifications Committee	MINIMUM UTILITY SEPARATION REQUIREMENTS	DETAIL NO. 2372

FIGURE 1

TWO LANE STREET

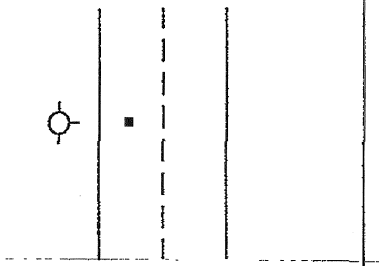


FIGURE 2

MULTI-LANE STREET

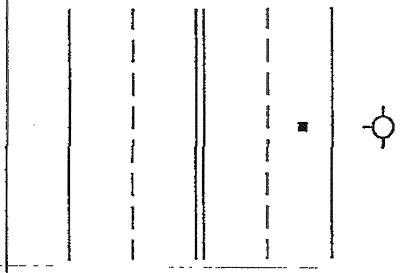


FIGURE 3

TWO LANE STREET AT INTERSECTION

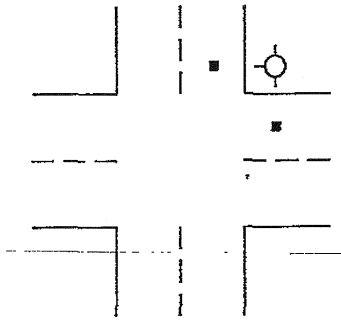


FIGURE 4

FOUR LANE STREET WITH TURN LANE AT INTERSECTION

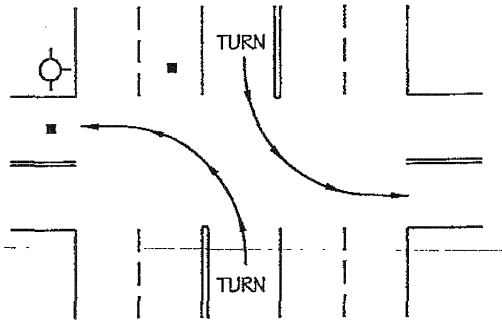


FIGURE 5

TWO LANE STREET AT INTERSECTION

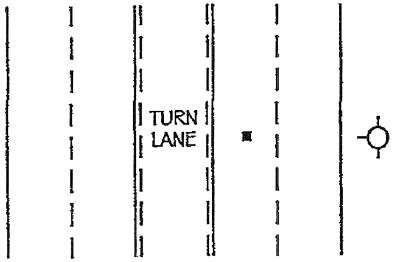


FIGURE 6

FREEWAYS AND EXPRESSWAYS

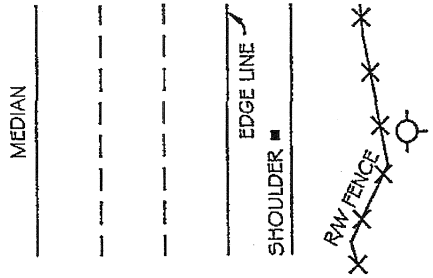
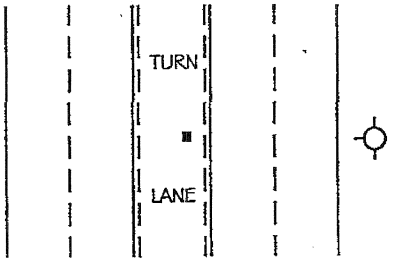


FIGURE 7

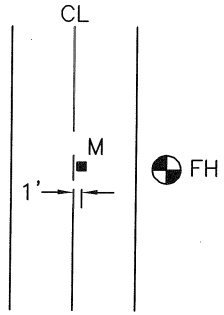
STATE HIGHWAY MULTI-LANE STREET WITH TURN LANE



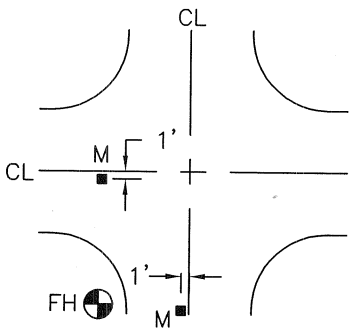
NOTES:

1. ALL MARKERS TO BE STIMSONITE MODEL 911AB (BLUE) OR APPROVED EQUAL.
2. MARKERS TO BE LOCATED IN CENTER OF LANE EXCEPT FIGURES 6 AND 7 WHICH WILL BE LOCATED 1 FOOT FROM EDGE OF LANE.

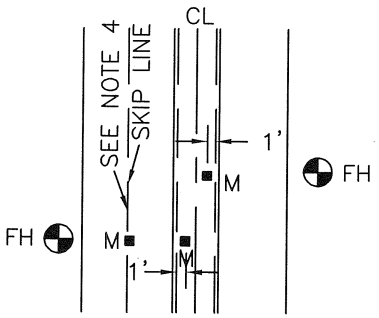
C-306 REPLACES **101**	CITY OF CHANDLER STANDARD DETAIL	**FIRE HYDRANT REFLECTOR LOCATIONS**	APPROVED: Bryan D. Patterson CITY ENGINEER DATE: 11-19-99	DETAIL NO. **C-306** NTS



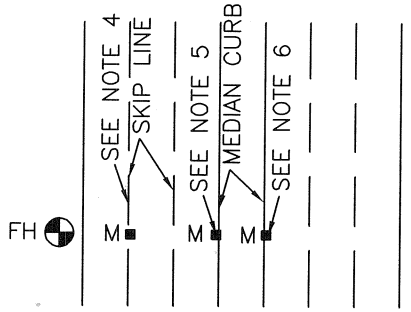
MIDBLOCK LOCAL



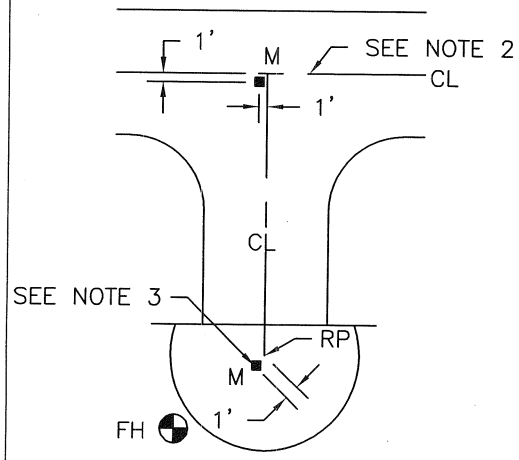
LOCAL CROSS INTERSECTION



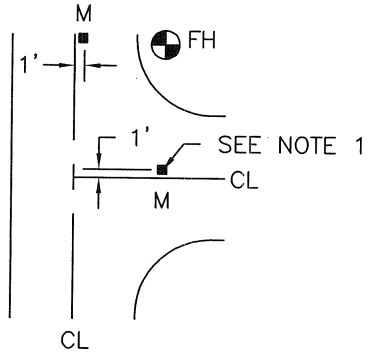
MIDBLOCK WITH CENTER LANE OR SKIP LINES



MIDBLOCK WITH RAISED MEDIAN

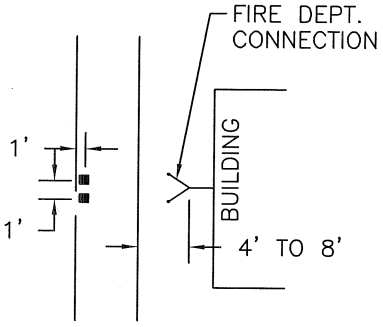


CUL-DE-SAC STREET

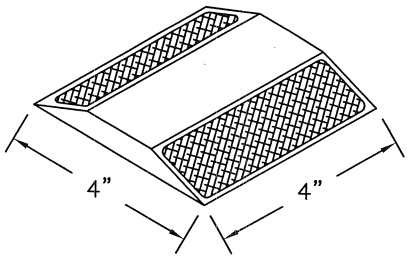


LOCAL 'T' INTERSECTION

2 MARKERS 1' APART PLACEMENT TO BE SAME AS (M) PAVEMENT MARKERS FOR HYDRANTS



FIRE DEPT. CONNECTION



(M) PAVEMENT MARKER

(2-WAY REFLECTIVE BLUE)

NOTES:

1. NOT REQUIRED ON DEAD END STREETS WITHOUT HYDRANTS.
2. PLACE ON HYDRANT SIDE OF THE CENTERLINE.
3. NOT REQUIRED WHEN CUL-DE-SAC IS LESS THAN 250'.
4. TO BE PLACED IN LINE WITH SKIP LINE.
5. PLACED ON GUTTER OR ADJACENT TO CURB.
6. PLACE ON TOP OF CURB. (THIS LOCATION OPTIONAL)
7. PAVEMENT MARKERS SHALL NOT BE PLACED WITHIN ONE FOOT OF A PAINT LINE. (CENTER TO CENTER)

DETAIL NO. 61	TOWN OF GILBERT STANDARD DETAIL	PAVEMENT MARKERS FOR FIRE HYDRANTS	REVISED 1/2005	DETAIL NO. 61

STANDARD DETAIL G-650

CITY OF GLENDALE

FIRE

GLENDALE

TYPICAL HYDRANT MARKER LOCATION

(NOTE: HYDRANT MARKERS SHALL BE INSTALLED 6" FROM PAINT STRIPES.)

FIGURE 1

TWO LANE STREET

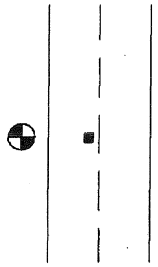


FIGURE 2

MULTI-LANE STREET

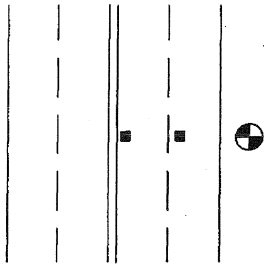


FIGURE 3

TWO LANE STREET
AT INTERSECTION

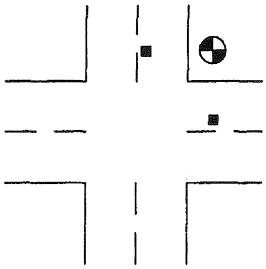


FIGURE 4

FOUR LANE STREET WITH
TURN LANE AT INTERSECTION

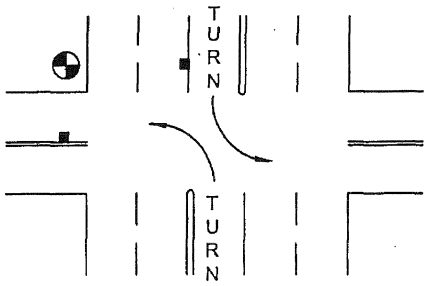


FIGURE 5

MULTI-LANE STREET WITH
TURN LANE

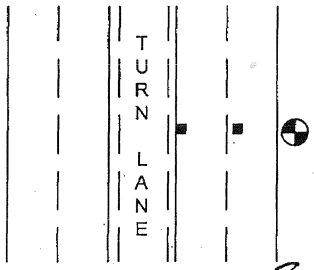
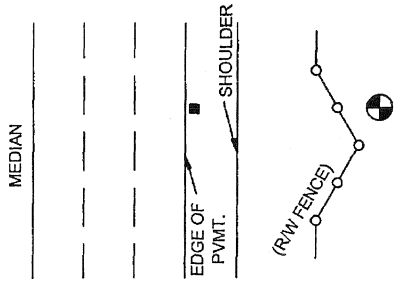


FIGURE 6

FREEWAYS AND
EXPRESSWAYS



APPROVED BY: _____

FIRE MARSHAL

11-6-01

DATE

REVISED : JULY 2001

Figure 1
TWO LANE STREET

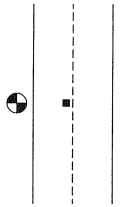


Figure 2
MULTI–LANE STREET

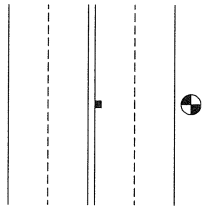


Figure 3
TWO LANE STREET
AT INTERSECTION

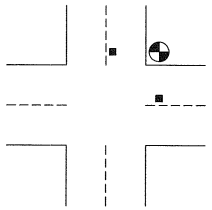


Figure 4
FOUR LANE STREET WITH
TURN LANE AT INTERSECTION

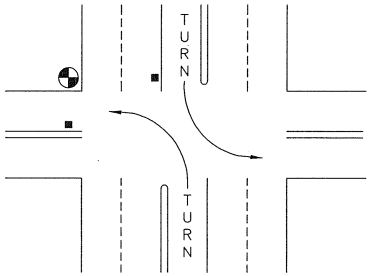


Figure 5
MULTI–LANE STREET WITH
TURN LANE

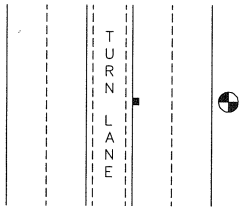


Figure 6
MULTI–LANE STREET
WITH MEDIAN

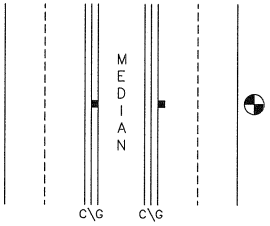
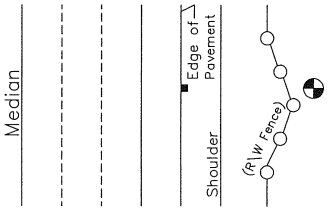


Figure 7
MULTI–LANE STREET
WITH MEDIAN



PAVEMENT MARKERS SHALL BE 911–A
BLUE, FIRE LITE, AMERACE CORPORATION,
SIGNAL PRODUCTS DIVISION OR EQUAL.

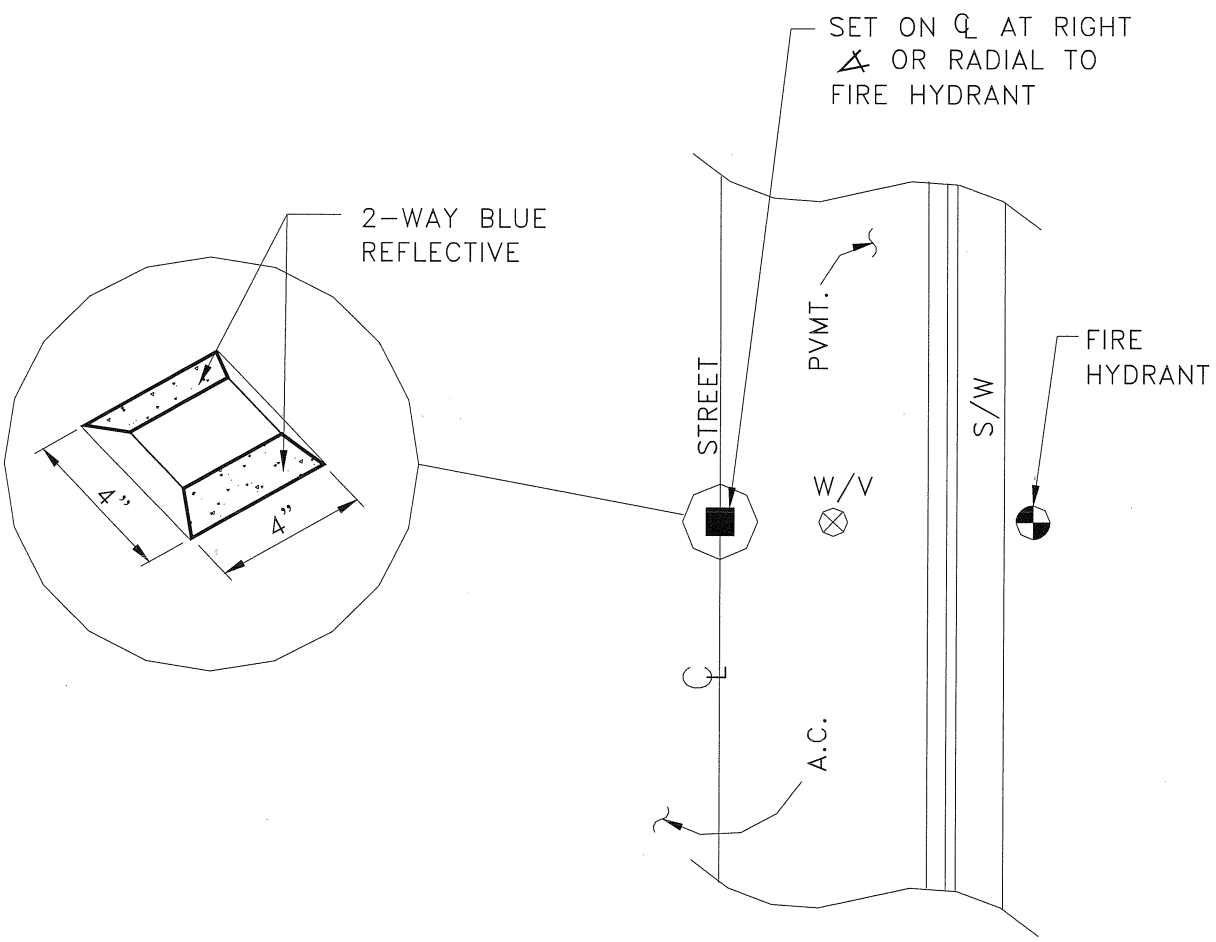
DETAIL NO. G-3212	CITY OF GOODYEAR STANDARD DETAIL	APPROVED BY: Goodyear Standards and Policies Committee 7/97	TYPICAL HYDRANT MARKER LOCATION	DETAIL NO. G-3212

PEORIA DETAIL 271

FIRE HYDRANT MARKER LOCATION

APPROVALS:

CITY ENGINEER DATE



FIRE HYDRANT MARKER LOCATION

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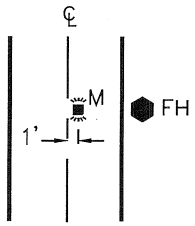
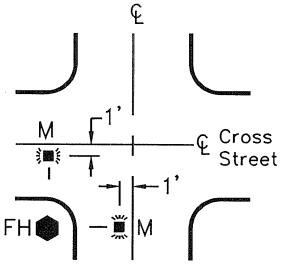
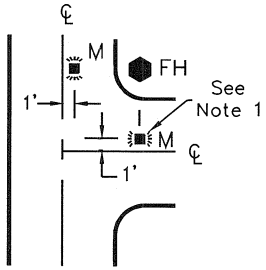
07/14/98



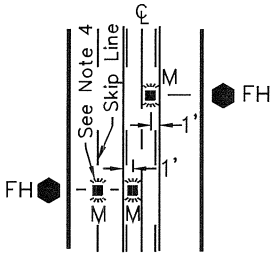
Midblock Local



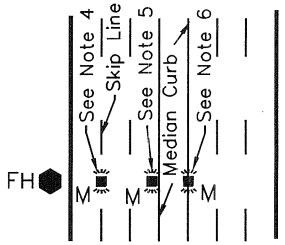
Local Cross Intersection



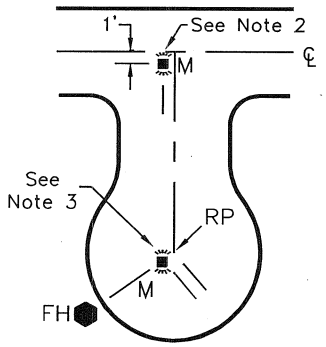
Local 'T' Intersection



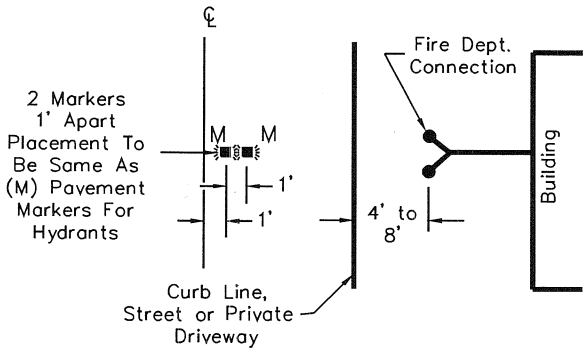
Midblock
WITH CENTER LANE OR SKIP LINES



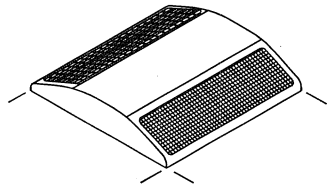
Midblock
WITH RAISED MEDIAN



Cul-De-Sac Street



Fire Dept. Connection



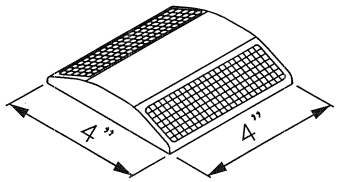
(M) Pavement Marker
(2-WAY REFLECTIVE BLUE)

NOTES:

1. Not Required on Dead End Streets Without Hydrants
2. Place on Hydrant Side of Centerline.
3. Not Required When Cul-De-Sac is Less Than 250'.
4. To Be Placed in Line With Skip Line.
5. Place on Gutter or Adjacent To Curb.
6. Place on Top of Curb. (This Location Optional)
7. Pavement Markers Shall Not Be Placed Within One Foot of A Paint Line (Center to Center).

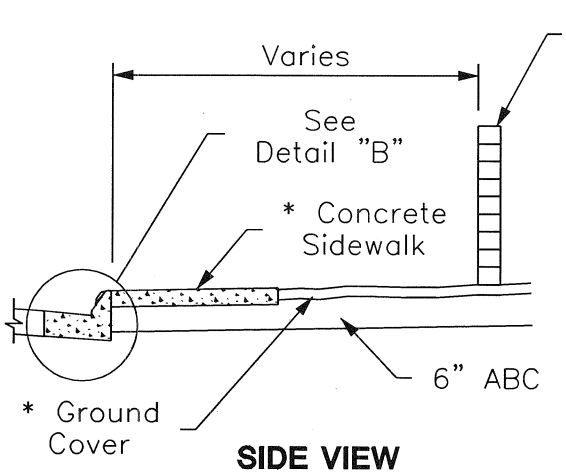
REVISED 6/15/91

DETAIL NO. 2363	City of Scottsdale Standard Details	APPROVED BY: Scottsdale Standards & Specifications Committee	PAVEMENT MARKERS FOR FIRE HYDRANTS	DETAIL NO. 2363

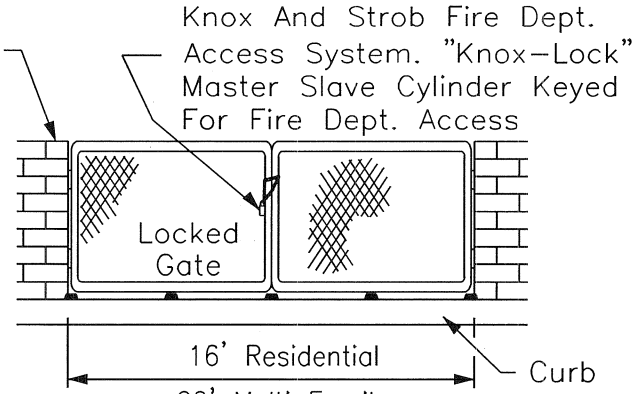


Type M Pavement Marker
(2-WAY REFLECTIVE BLUE)

DETAIL "A"

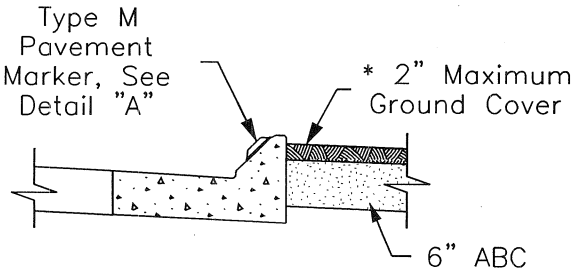


SIDE VIEW

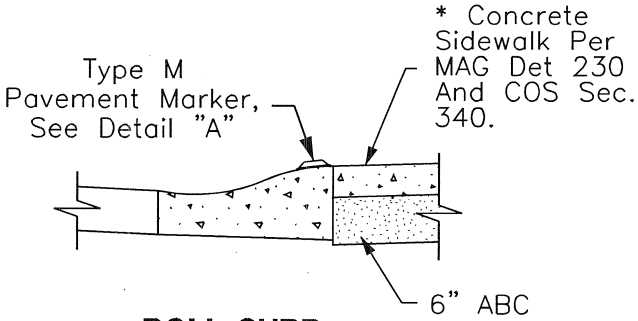


FRONT VIEW

* NOTE:
Sidewalk And/Or 2" Max. Ground Cover Over Min. 6" ABC

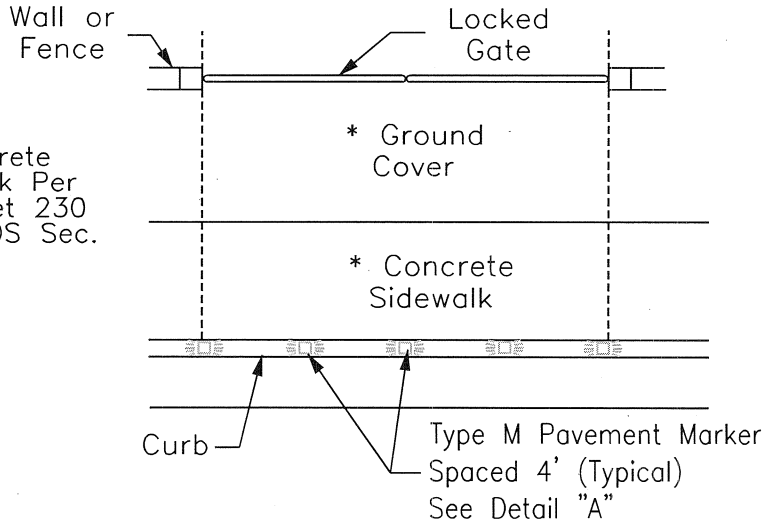


TYPE "M" MOUNTABLE CURB AND GUTTER



ROLL CURB

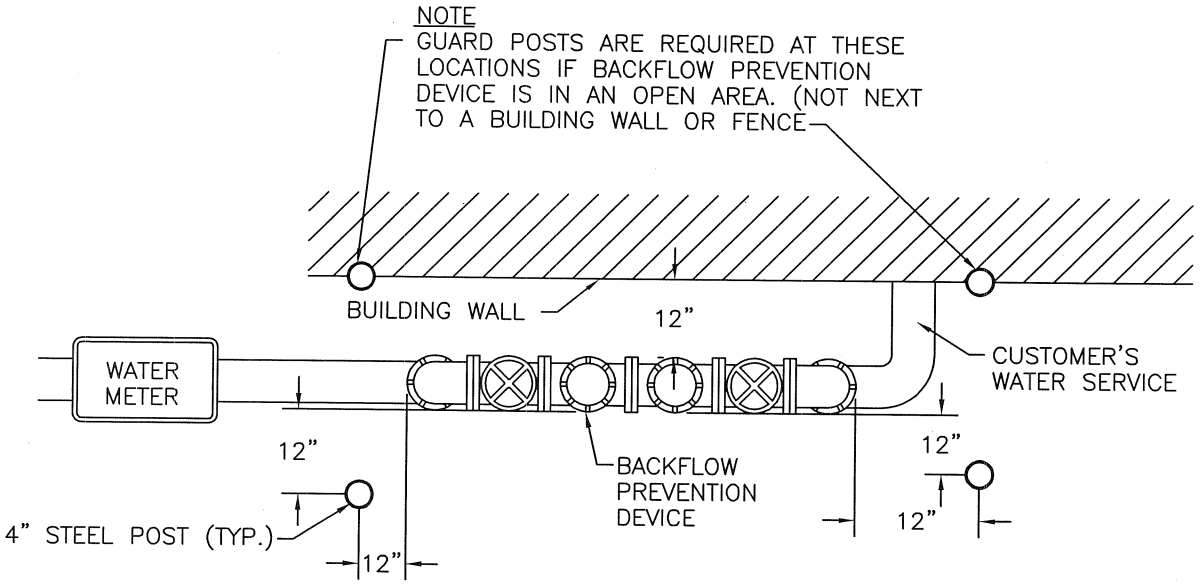
DETAIL "B"



TOP VIEW

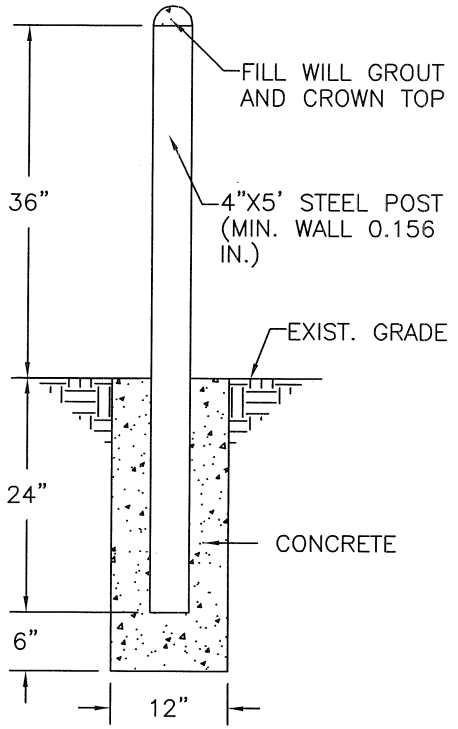
REVISED 2/26/04

DETAIL NO. 2364	City of Scottsdale Standard Details	APPROVED BY: Scottsdale Standards & Specifications Committee	FIRE AND EMERGENCY ACCESS AND DELINEATION	DETAIL NO. 2364



GUARD POST FOR BACKFLOW PREVENTION DEVICES

PLAN VIEW



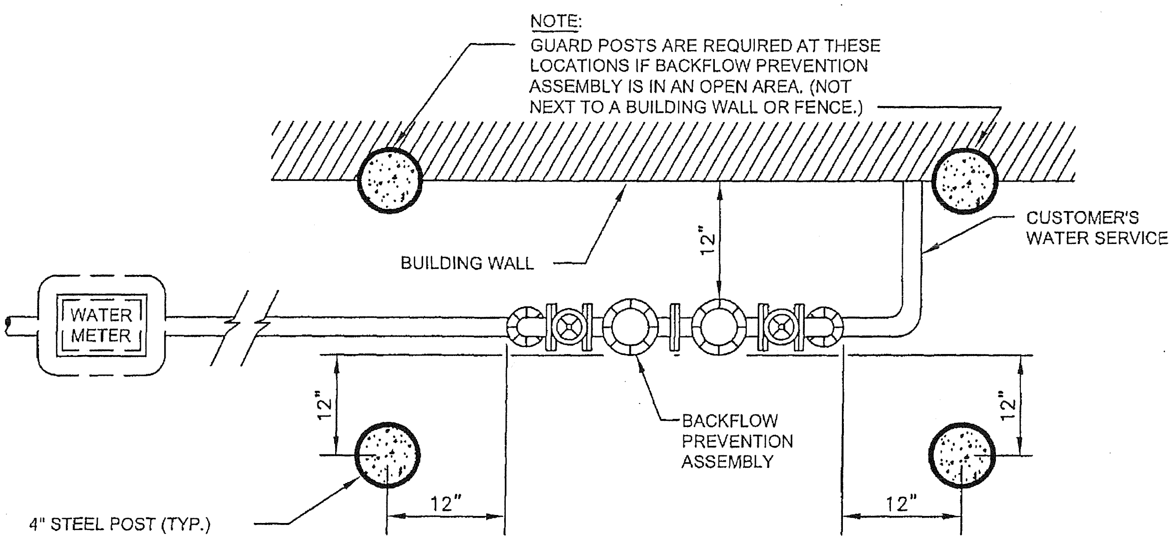
GUARD POST SECTION

DETAIL NO. 83B	TOWN OF GILBERT STANDARD DETAIL	GUARD POSTS	REVISED 1/2005	DETAIL NO. 83B

STANDARD DETAIL G-672

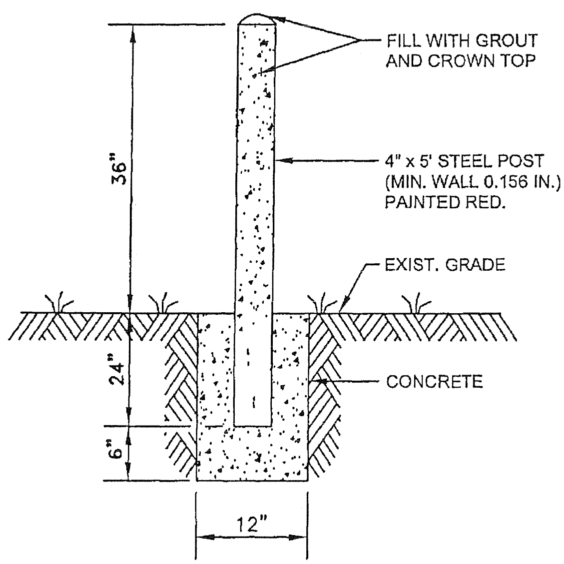
CITY OF GLENDALE
ENGINEERING

GUARD POST FOR BACKFLOW PREVENTION ASSEMBLY



GUARD POST FOR BACKFLOW PREVENTION ASSEMBLY

PLAN VIEW



GUARD POST SECTION

APPROVED BY: *[signature]* CITY ENGINEER

6/28/02 DATE

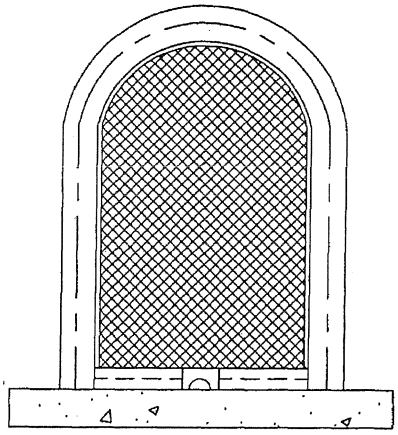
REVISED : JUNE 2002

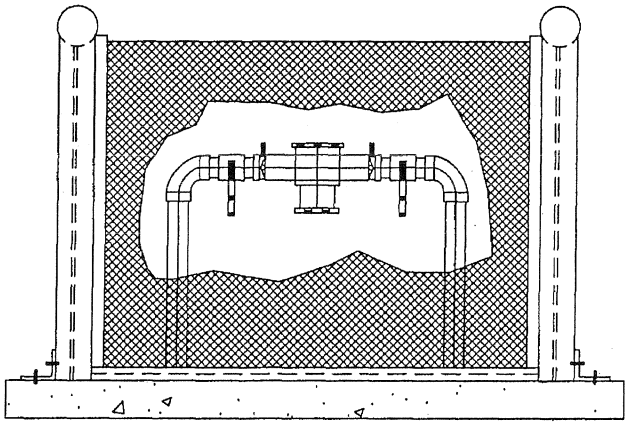
STANDARD DETAIL G-673

CITY OF GLENDALE
ENGINEERING

GLENDALE

METAL CAGE FOR REDUCED PRESSURE PRINCIPAL BACKFLOW PREVENTION ASSEMBLY 2 1/2" OR LESS



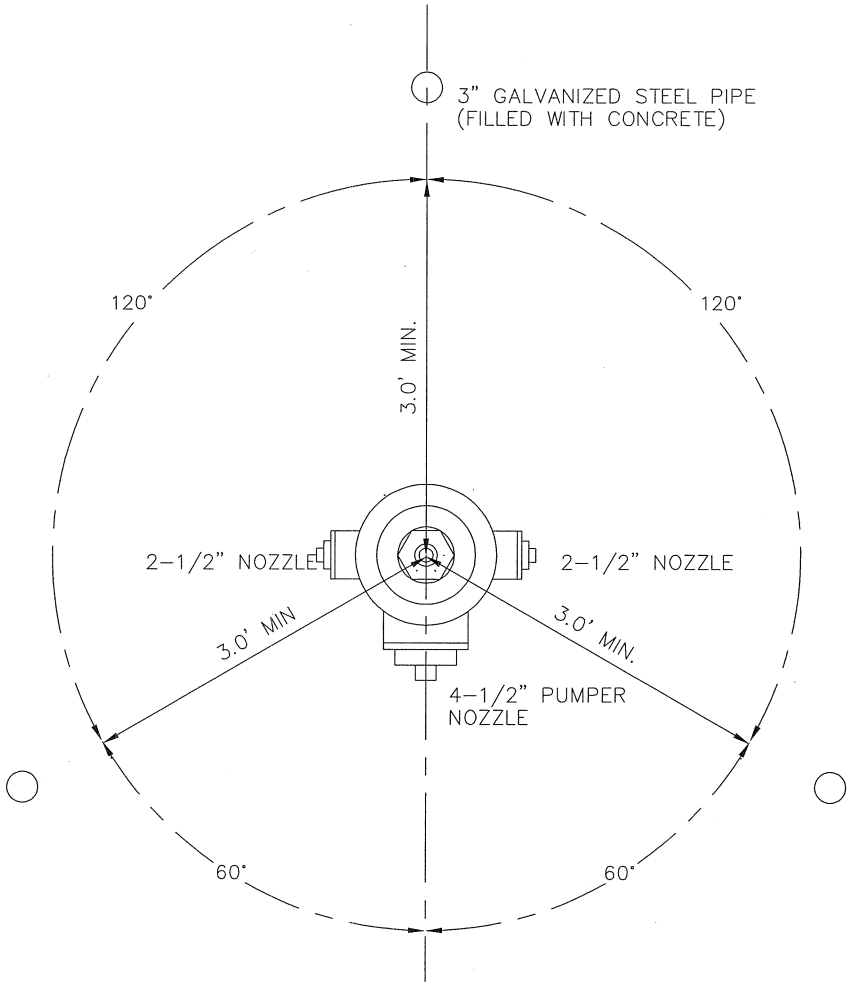


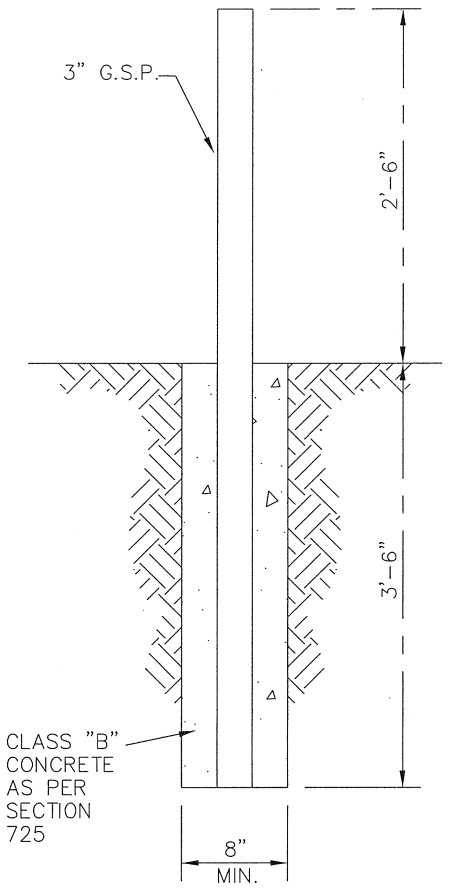
1. SET EYEBOLT WITH BOTTOM OF CIRCLE FLUSH WITH CONCRETE BASE. THEN EYEBOLT CANNOT BE TURNED WHEN BRACKET IS IN PLACE.
2. BOLT BRACKETS TO ENCLOSURE ON ENDS OR BOTH SIDES. USE 1/4" x 1 1/4" TAMPER-PROOF BOLTS WITH HEX NUTS AND WASHERS PROVIDED.
3. SUGGESTED PAD DIMENSIONS - 32"L x 18"W x 3 3/4" THICK.
4. COLOR OF CAGE SHALL MATCH COLOR OF NEAREST WALL.

APPROVED BY: Harry J Broyles
CITY ENGINEER

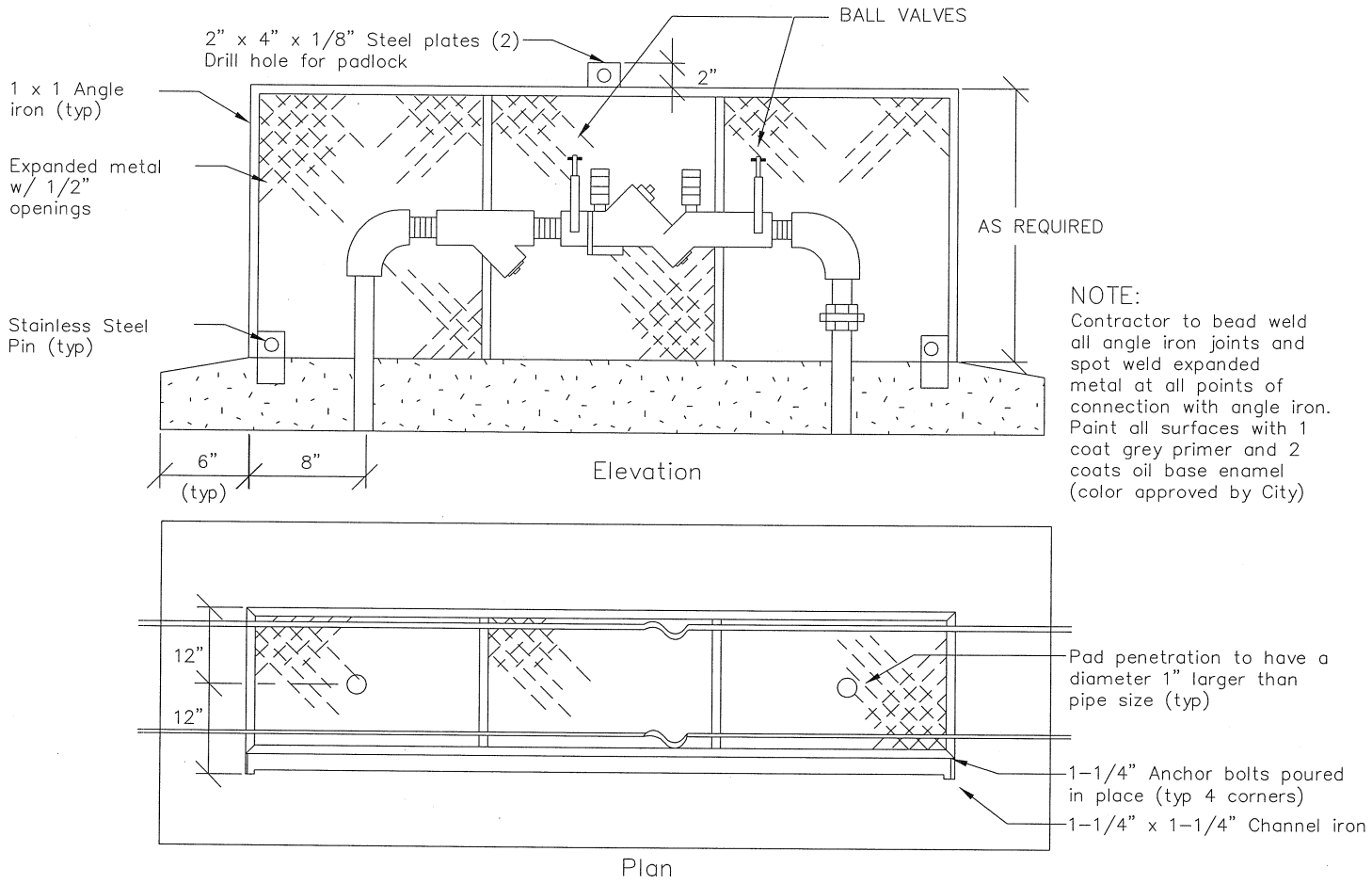
6/28/02
DATE

REVISED : JUNE 2002

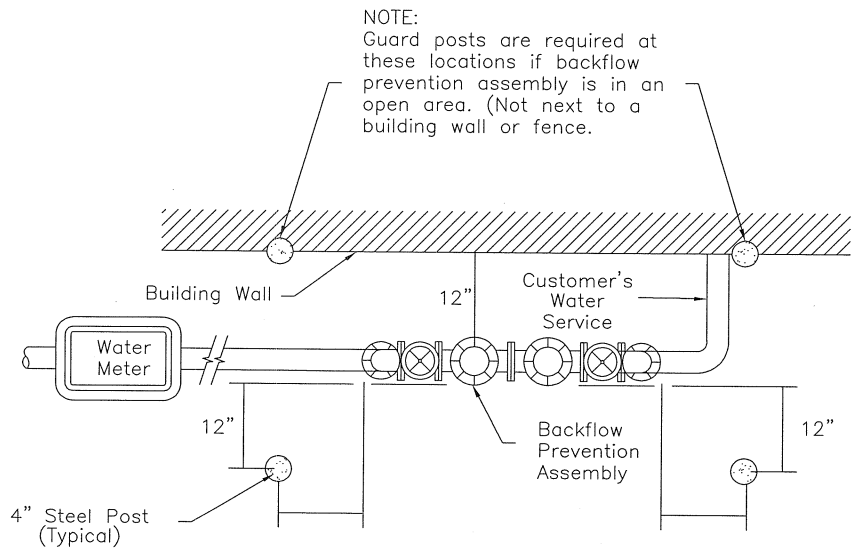




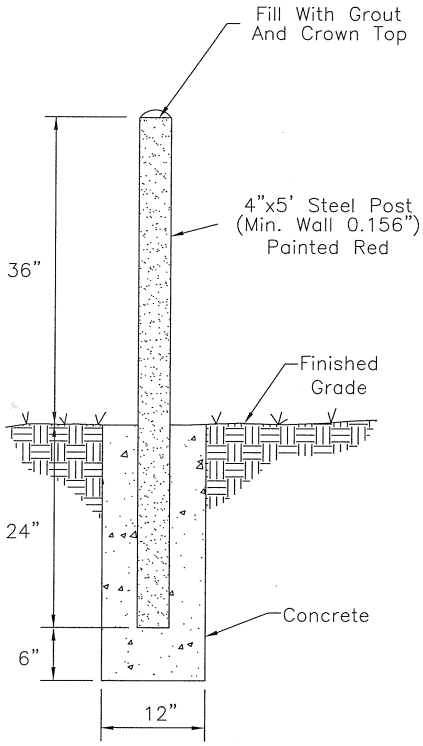
DETAIL NO. G-3332	CITY OF GOODYEAR STANDARD DETAIL	APPROVED BY: Goodyear Standards and Policies Committee 7/97	HYDRANT GUARDS	DETAIL NO. G-3332



DETAIL NO. G-3357	CITY OF GOODYEAR STANDARD DETAIL	APPROVED BY: Goodyear Standards and Policies Committee 7/97	BACKFLOW PREVENTION DEVICE SECURITY ENCLOSURE DETAIL	DETAIL NO. G-3357

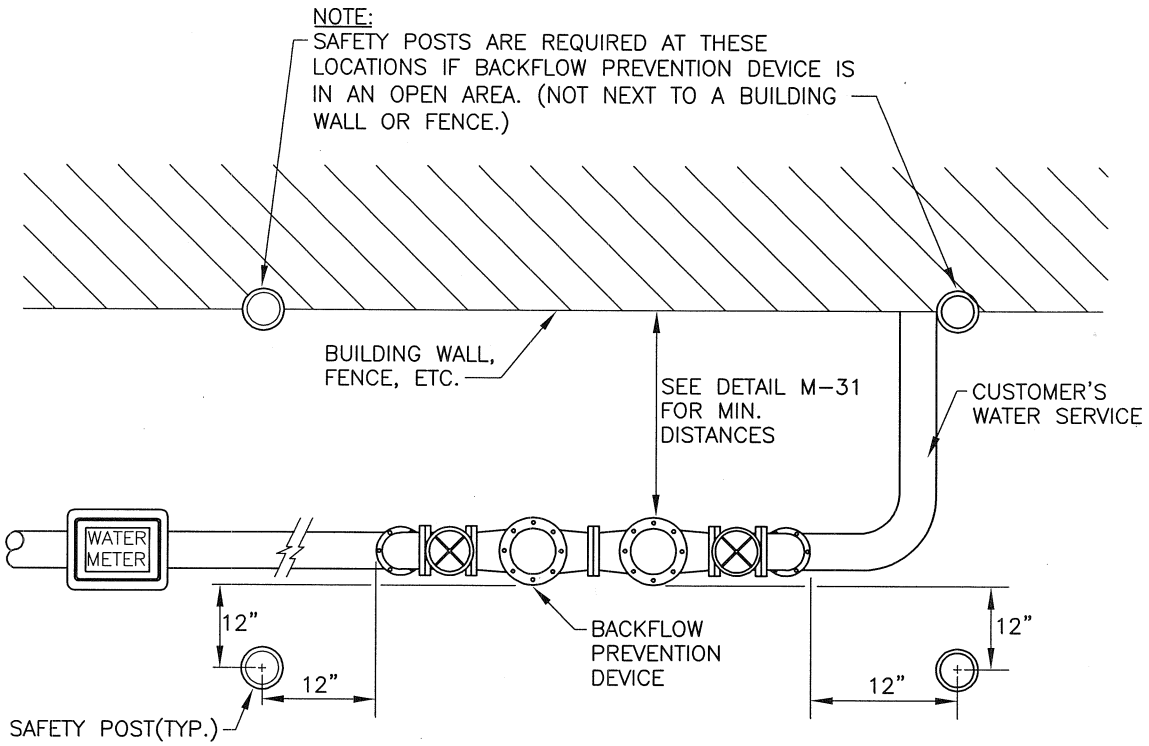


PLAN VIEW



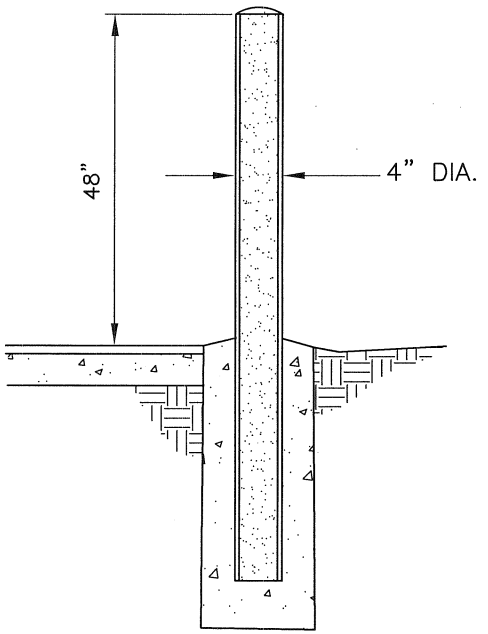
GUARD POST SECTION

DETAIL NO. G-3358	CITY OF GOODYEAR STANDARD DETAIL	APPROVED BY: Goodyear Standards and Policies Committee 7/97	GUARD POSTS FOR BACKFLOW PREVENTION ASSEMBLIES	DETAIL NO. G-3358



SAFETY POST FOR BACKFLOW PREVENTION DEVICES

PLAN VIEW

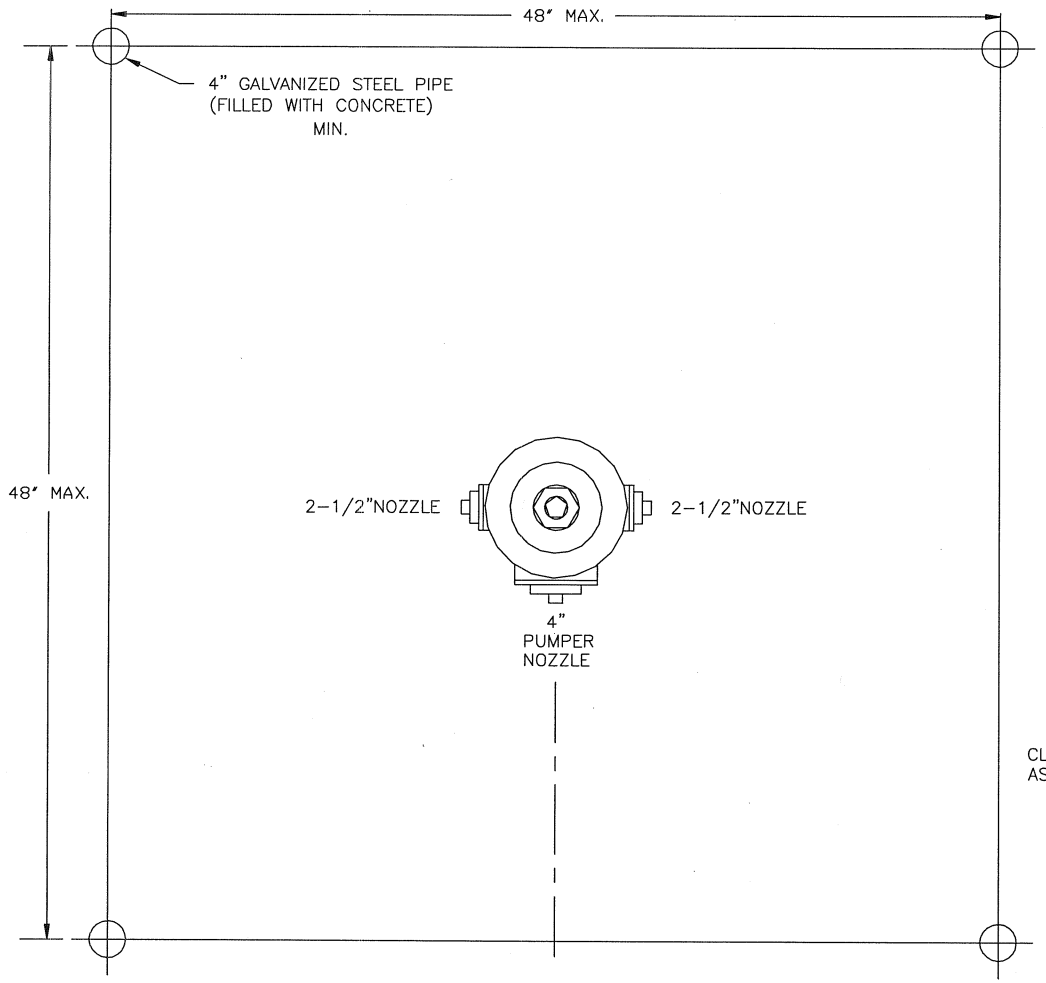


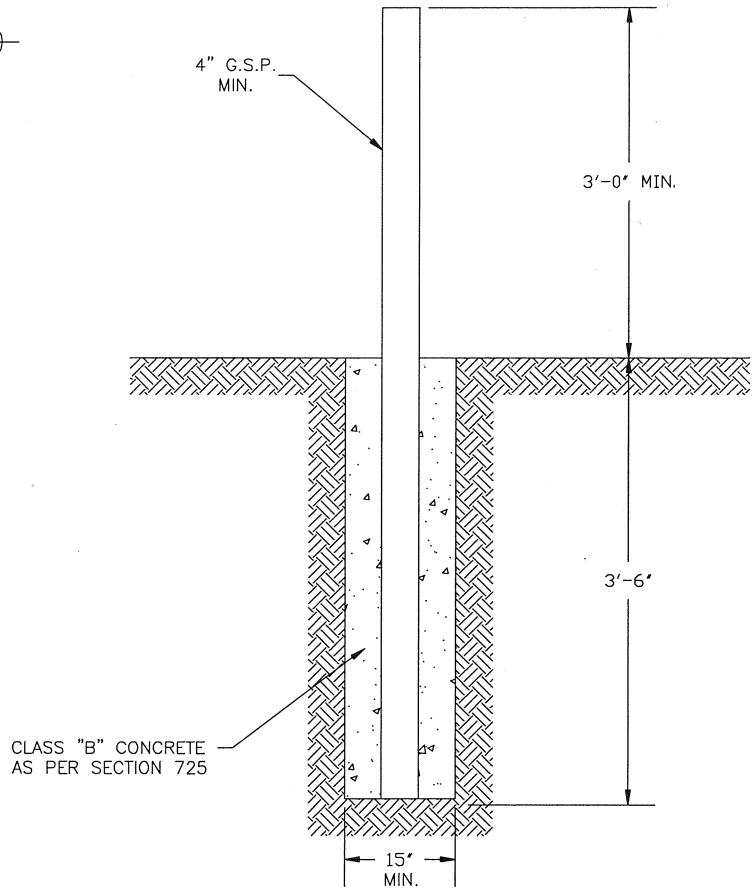
SAFETY POST PER M.A.G. DETAIL 140 EXCEPT AS NOTED ABOVE

GUARD POST FOR BACKFLOW PREVENTION DEVICES

DETAIL NO. M-32

REV. 01/01/01





1) AS PER LATEST EDITION CITY OF PHOENIX FIRE PREVENTION CODE – ORDINANCE NO. G-4160, 8001.11.3

DETAIL NO.			APPROVED	DETAIL NO.
P1359	**City of Phoenix STANDARD DETAIL**	HYDRANT GUARDS	CITY ENGINEER — 6-27-01 DATE	P1359

NOTES:

2" LETTERS ARE 5/8" WIDE.
1 1/2" LETTERS ARE 1/2" WIDE.
3/4" LETTERS ARE 1/8" WIDE.
ALL LETTERS ARE RED WITH A WHITE BACKGROUND.

THE SIGNS ARE TO BE MOUNTED ON A POST AS PER MAG DETAIL 131.

THE BOTTOM OF THE SIGN IS TO BE 7' ABOVE GRADE AND NO MORE THAN 75' APART. THESE SIGNS ARE NOT SUPPLIED BY THE TOWN.

DETAIL NO. 63	TOWN OF GILBERT STANDARD DETAIL	TOWN OF GILBERT FIRE DEPT. FIRE LANE SIGN DETAIL	REVISED 10/1/95	DETAIL NO. 63

STANDARD DETAIL G-434

CITY OF GLENDALE

FIRE

INSTALLATION OF FIRE LANE SIGNS

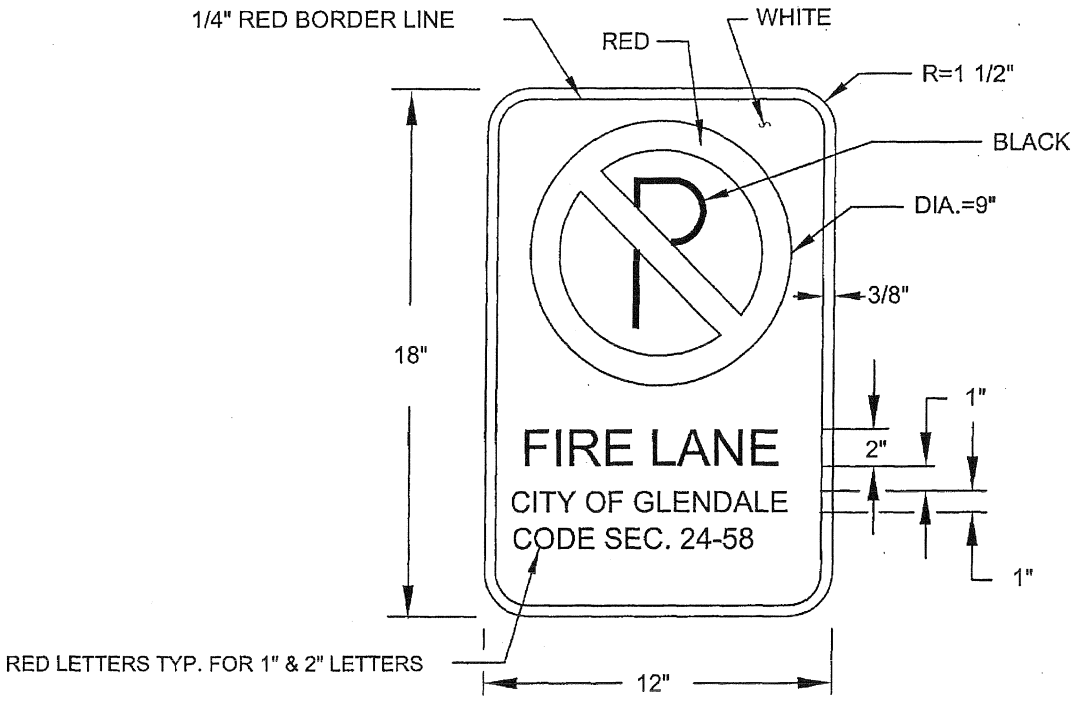
1. FIRE LANE SIGNS SHALL BE INSTALLED AS REQUIRED BY FIRE PREVENTION.

   A. SIGNS SHALL BE 12" WIDE AND 18" LONG BY .063" THICK. THEY SHALL HAVE A REFLECTORIZED SURFACE USING SCOTCHLITE MATERIAL OR EQUAL.

   B. THEY SHALL BE MOUNTED ON STURDY METAL POSTS WITH THE BOTTOM OF THE SIGN NO LESS THAN 7'-0" ABOVE GRADE.

   C. SIGNS SHALL BE MOUNTED SO THEY ARE VISIBLE IN THE DIRECTION OF TRAVEL.

   D. THE SIGN SHALL READ AS FOLLOWS:



2. SIGNS SHALL BE PROVIDED BY AND MAINTAINED BY THE PROPERTY OWNER/OCCUPANT.

3. AFTER REQUIRED SIGNS ARE INSTALLED, FIRE PREVENTION WILL INSPECT AND AFFIX A STAMP OF APPROVAL TO ALL APPROVED SIGNS.

APPROVED BY: _____ 11-6-01

FIRE MARSHALL — DATE

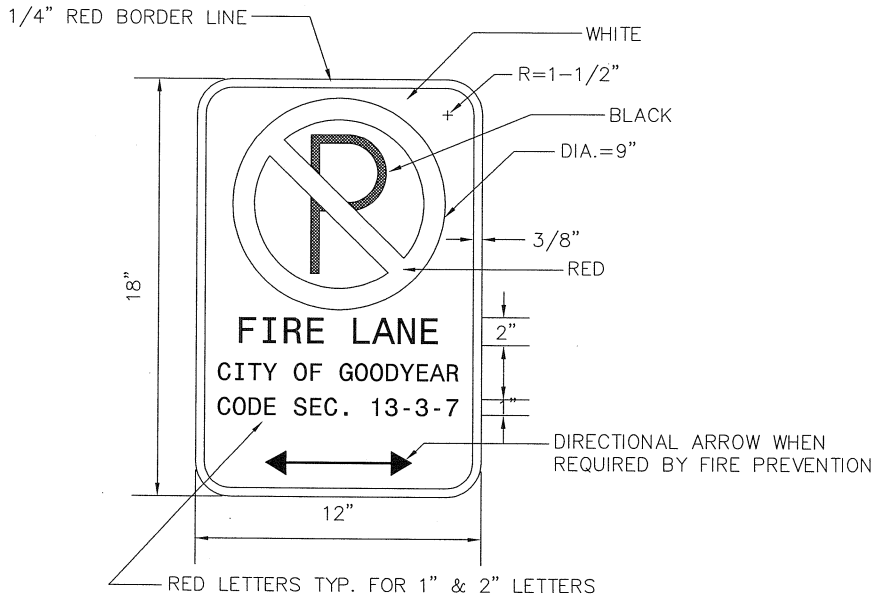
REVISED: JULY 2001

1. FIRE LANE SIGNS SHALL BE INSTALLED AS REQUIRED BY FIRE PREVENTION.

   A. SIGNS SHALL BE 12" WIDE AND 18" LONG BY .063" THICK. THEY SHALL HAVE A REFLECTORIZED SURFACE USING SCOTCHLITE MATERIAL OR EQUAL.

   B. THEY SHALL BE MOUNTED ON STURDY METAL POSTS WITH THE BOTTOM OF THE SIGN NO LESS THAN 5'–0" INCHES AND NO GREATER THAN 7'0" ABOVE GRADE.

   C. THE SIGN SHALL READ AS FOLLOWS:



2. SIGNS SHALL BE PROVIDED BY PROPERTY OWNER / OCCUPANT.

DETAIL NO. G-3142	CITY OF GOODYEAR STANDARD DETAIL	APPROVED BY: Goodyear Standards and Policies Committee 7/97	FIRE LANE SIGN INSTALLATION	DETAIL NO. G-3142

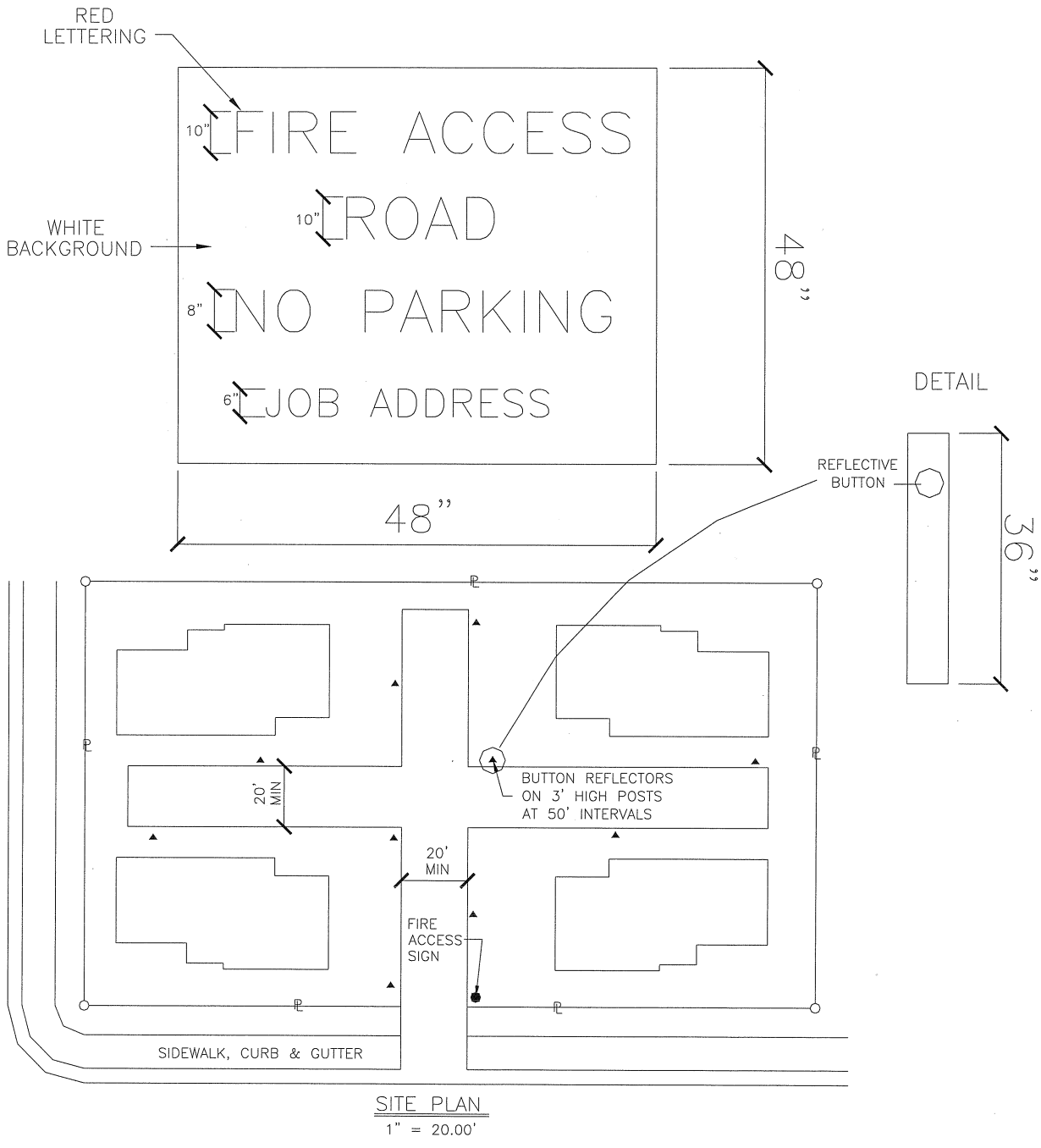
PEORIA DETAIL

CONSTRUCTION FIRE ACCESS SIGN

APPROVALS:

CITY ENGINEER DATE

FIRE MARSHAL DATE



SITE PLAN

1" = 20.00'

I:\GUIDE\DETAILS\###.DWG

11/30/01

PEORIA DETAIL

FIRE LANE SIGN

APPROVALS:

CITY ENGINEER DATE

FIRE MARSHAL DATE

SIGNS SHALL HAVE RED LETTERING ON A WHITE BACKGROUND

12" X 18"

12" X 18"

12" X 18"

I:\GUIDE\DETAILS\###.DWG

11/30/01

NOTES:

1. At the beginning and end of the fire lane, the sign shall have a single headed arrow pointing in the direction the regulation is in effect. The intermediate signs shall have double headed arrows pointing in both directions.

2. The maximum spacing of the signs shall be 100', contingent upon Traffic Engineering's review and approval.

3. The signs shall be set at an angle of not less than 30° nor more than 45° with the curb or line of traffic flow

4. The clearance to the bottom of the sign shall be 7 feet. There shall be no other signs attached to the sign or the sign pole.

5. The sign plate shall be a minimum of 12'' x 18'' with a thickness of 0.80".

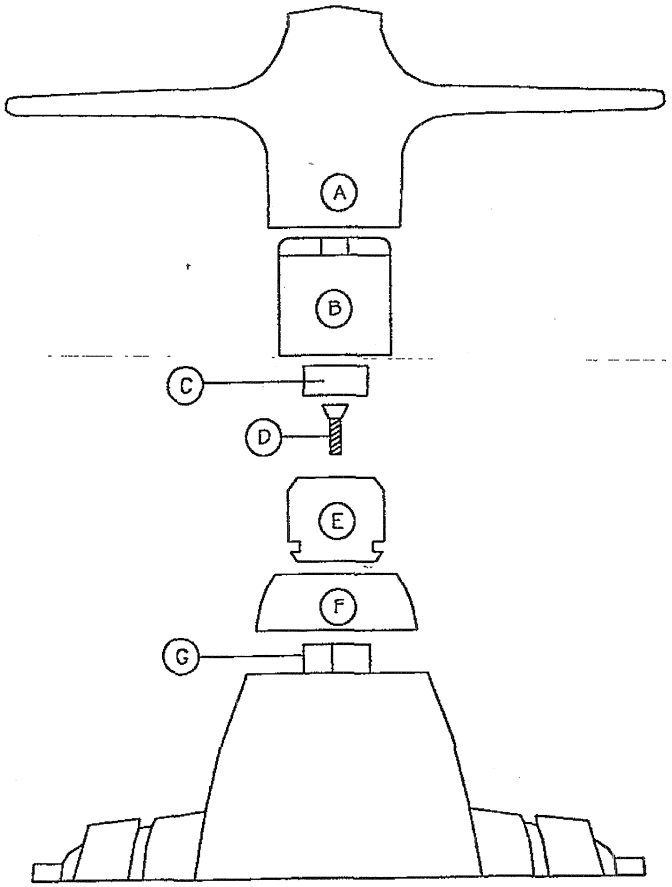
6. The sign face shall have a white, ASTM Type II (super engineering grade) reflective background with a red reflective legend. Use the standard sign face number R7–32 or equivalent incorporating additional information to complete the sign as shown above.

REVISED 2/26/04

DETAIL NO. 2365	City of Scottsdale Standard Details	APPROVED BY: Scottsdale Standards & Specifications Committee	FIRE LANE SIGN	DETAIL NO. 2365

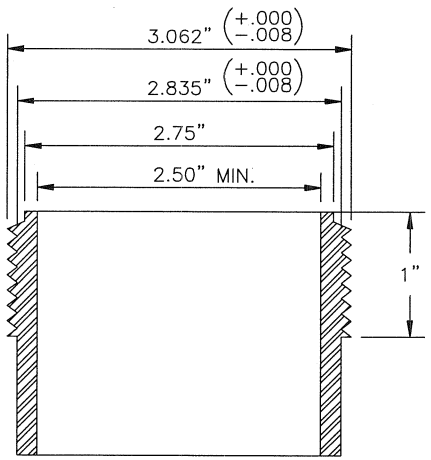
NOTES:

- (A) KEY WRENCH
- (B) SWIVEL HOUSING
- (C) ACTIVATOR LOCK
- (D) RETAINING BOLT
- (E) INNER BARREL
- (F) MATING COLLAR
- (G) HYDRANT OPERATING NUT

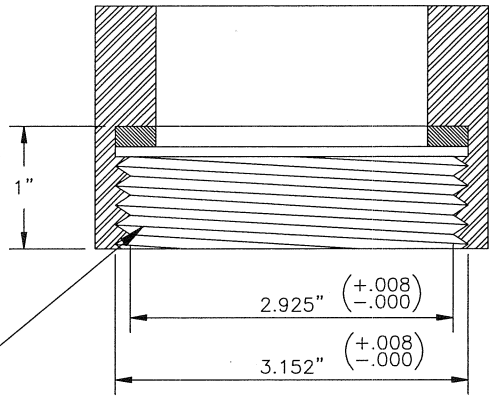


C-304 **REPLACES** **49A**	CITY OF CHANDLER STANDARD DETAIL	**FIRE HYDRANT LOCK**	APPROVED: _____ CITY ENGINEER DATE: 11-19-99	DETAIL NO. **C-304** NTS

2-1/2" HYDRANT NOZZLE

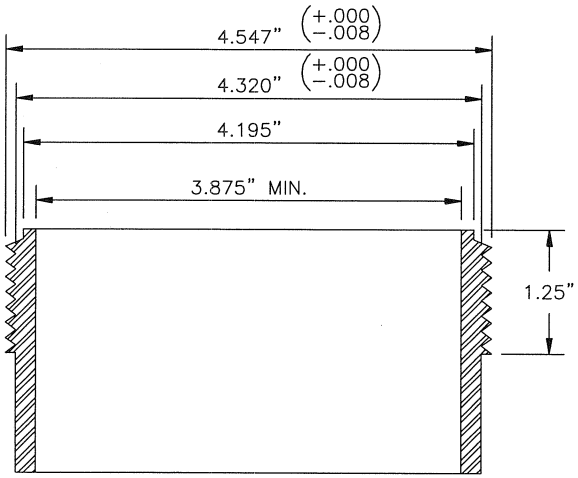


2-1/2" CAP

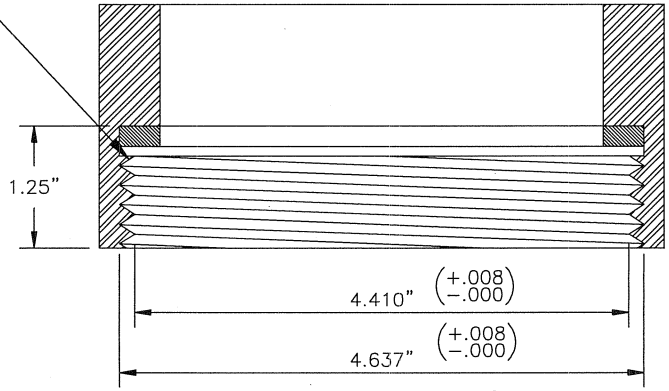


6 THREADS FER INCH

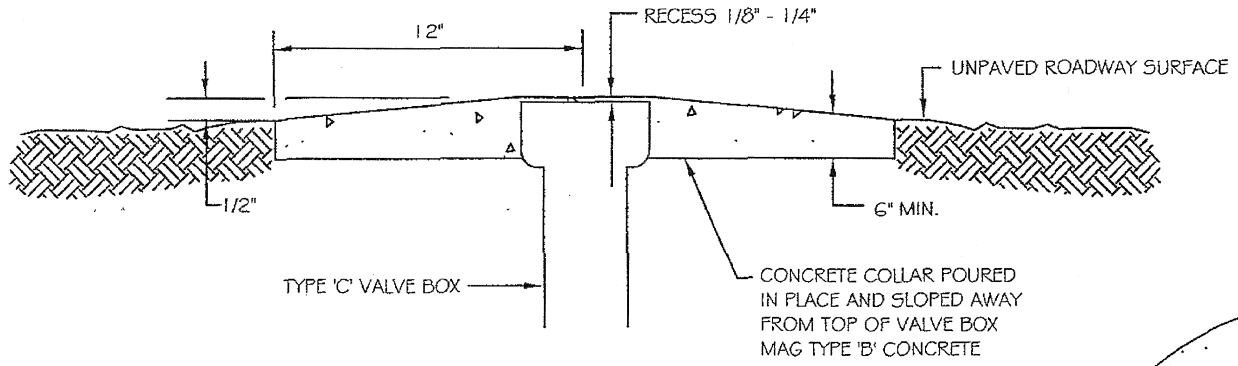
4" HYDRANT NOZZLE



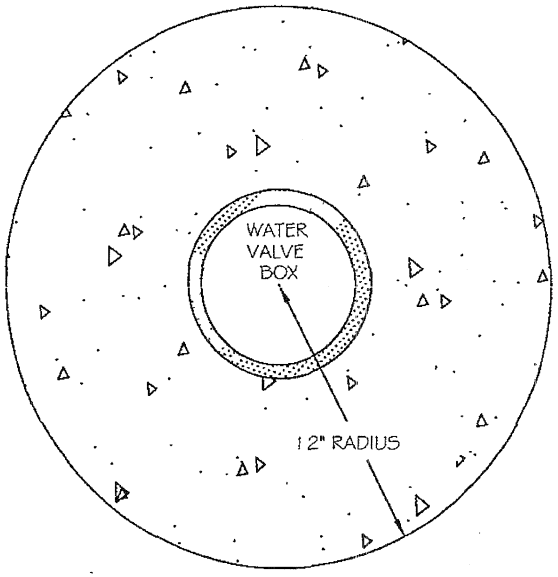
4" CAP



DETAIL NO.					DETAIL NO.
P1361	City of Phoenix STANDARD DETAIL	FIRE HYDRANT THREADS 2-1/2" & 4"	APPROVED Kenny W Hann CITY ENGINEER	07-09-92 DATE	P1361

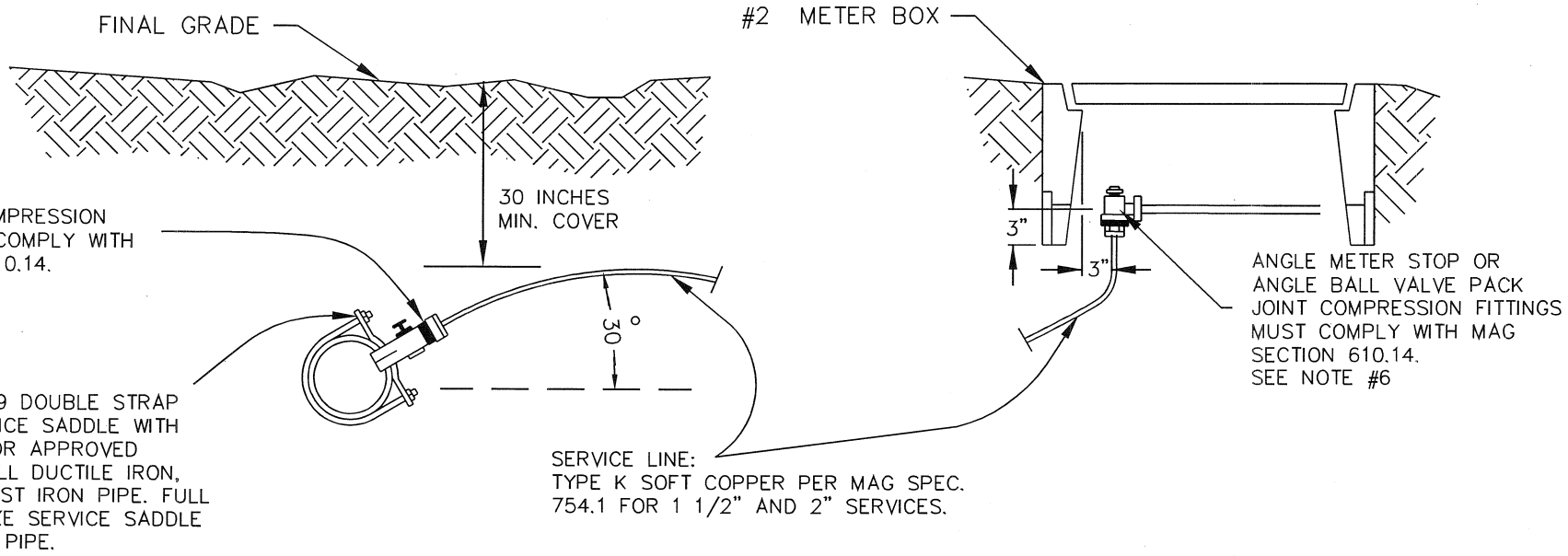


SIDE VIEW



TOP VIEW

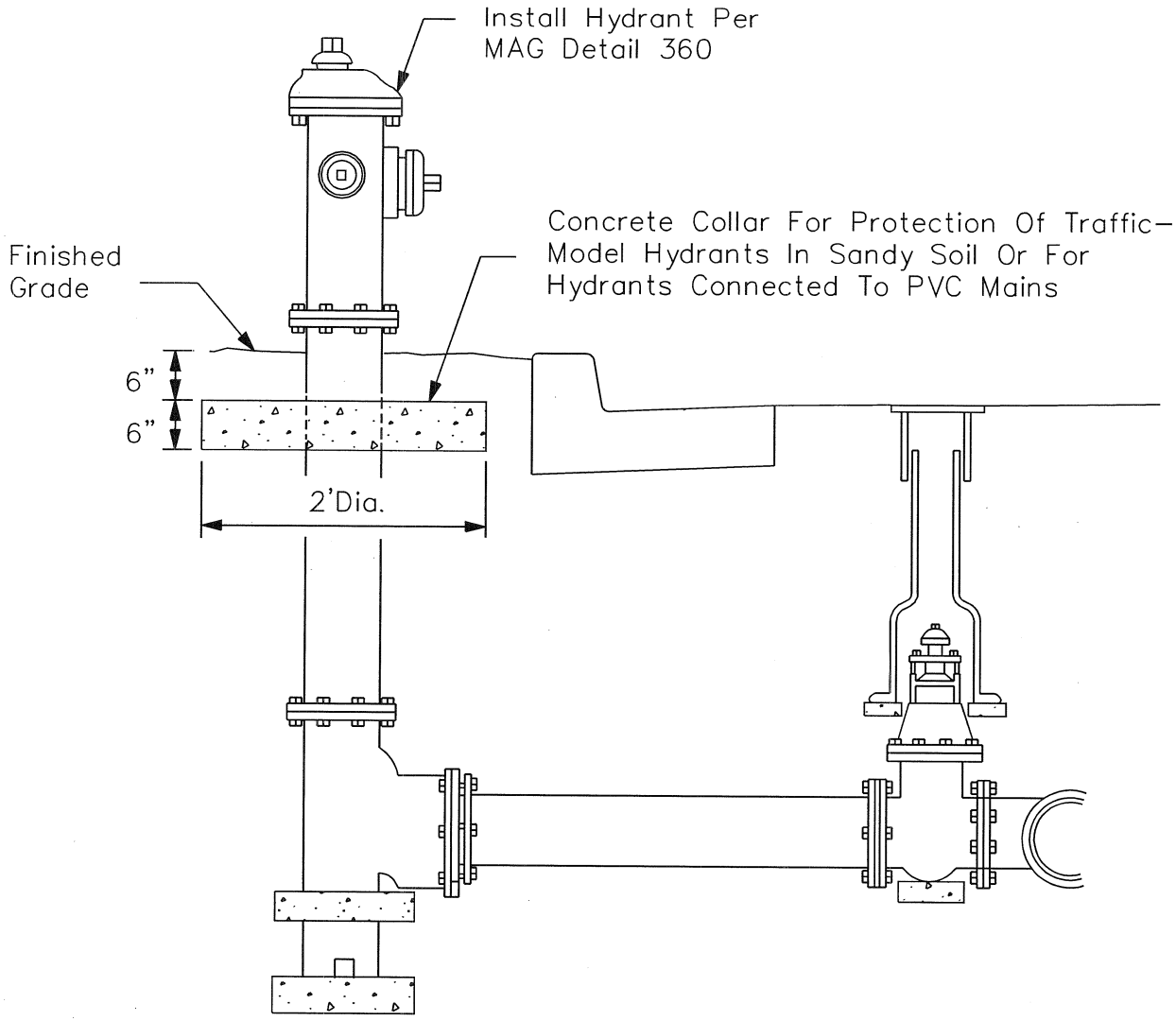
C-317 REPLACES **52**	CITY OF CHANDLER STANDARD DETAIL	**CONCRETE COLLAR DETAIL** **WATER VALVE BOX PLACEMENT** **UNPAVED AREAS**	APPROVED: Elizabeth W. Wilson CITY ENGINEER DATE: January 11, 2002	DETAIL NO. **C-317** NTS



REVISED 4/12/05

NOTE:
1. All taps must be made using a service saddle.
2. All service line sizes shall have the pack joint compression fittings for corp. stops and meter stops.
3. Where a contractor is installing new water lines, he shall also install the water service connection. The installation shall include the service saddle, corp. stop, service pipe, appurtenant fittings, meter stop, concrete meter box and box cover, per M.A.G. Specifications.
4. Copper service lines in the 1 1/2", and 2" sizes that cross streets will be one continuous piece. Only with the express written consent of Water & Wastewater Operations will joints be permitted under a road. When this occurs, pack joint fittings will be required; no soldered joints will be permitted.
5. When all or part of a development is to be served by existing City of Scottsdale water mains, only authorized City of Scottsdale Water and Wastewater Operations personnel shall install the fire service connection.
6. Fire Department Identification Tag is required. Water resistant tag shall be affixed to valve in meter box and shall state: "DO NOT CLOSE! Fire Sprinkler Supply Line".
7. Rough grade shall be set to 1 ½ inches below top of meter box. Final landscape grade shall be set flush to top of meter box.

DETAIL NO. 2362	City of Scottsdale Standard Details	APPROVED BY: Scottsdale Standards & Specifications Committee	1 1/2" - 2" FIRE LINE CONNECTION	DETAIL NO. 2362

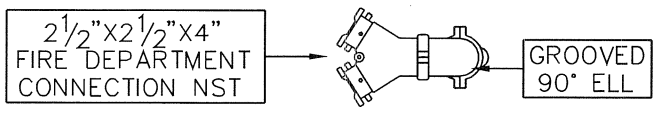


REVISED: 4/30/04

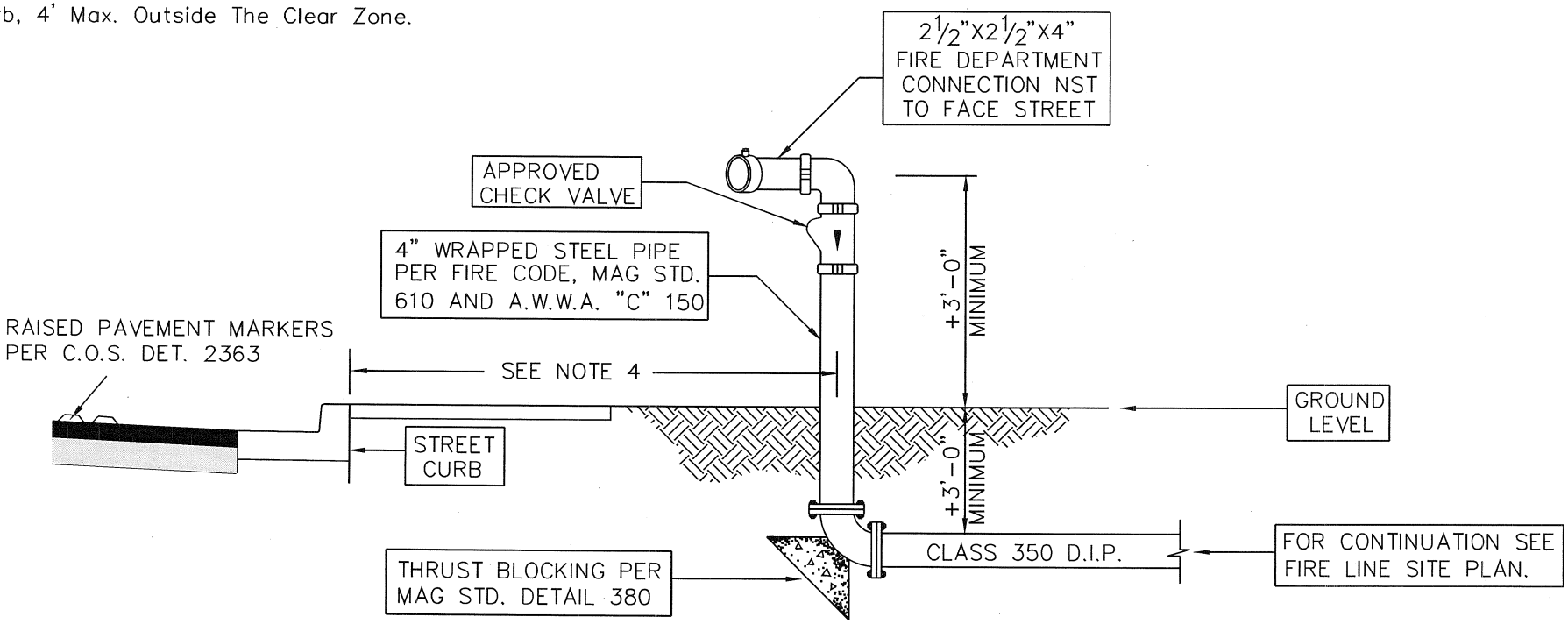
DETAIL NO. 2366	City of Scottsdale Standard Details	APPROVED BY: Scottsdale Standards & Specifications Committee	CONCRETE COLLAR FOR FIRE HYDRANTS	DETAIL NO. 2366

GENERAL NOTES

1. Provide Building I.D. On Remote Fire Dept. Connection.
2. No Trees, Bushes Or Walls Within 5' Radius Of Fire Dept. Connection
3. If Fire Sprinkler Design Indicates Demand Of 1000 GPM Or Greater, The Underground Fire Dept. Connection Line Shall Be Increased To 6" Diameter With A Three Way 2½" Fire Dept. Hose Connection
4. 4' Min. To Back Of Curb, or 2' Min To Back Of Sidewalk, or When No Curb, 4' Max. Outside The Clear Zone.



TOP VIEW

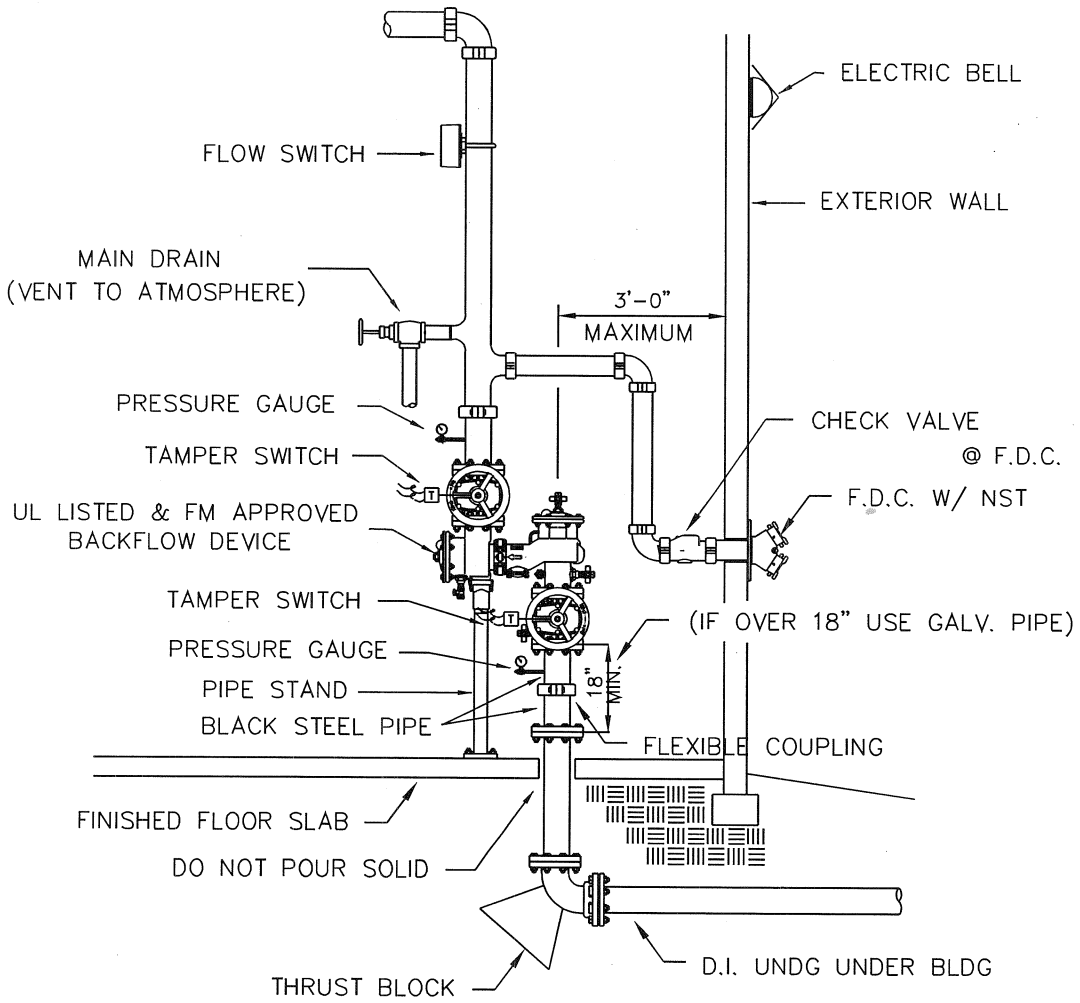


SIDE VIEW

REVISED 5/17/05

DETAIL NO. 2367	City of Scottsdale Standard Details	APPROVED BY: Scottsdale Standards & Specifications Committee	FIRE DEPARTMENT REMOTE SIAMESE CONNECTION	DETAIL NO. 2367

REVISED 5/17/05

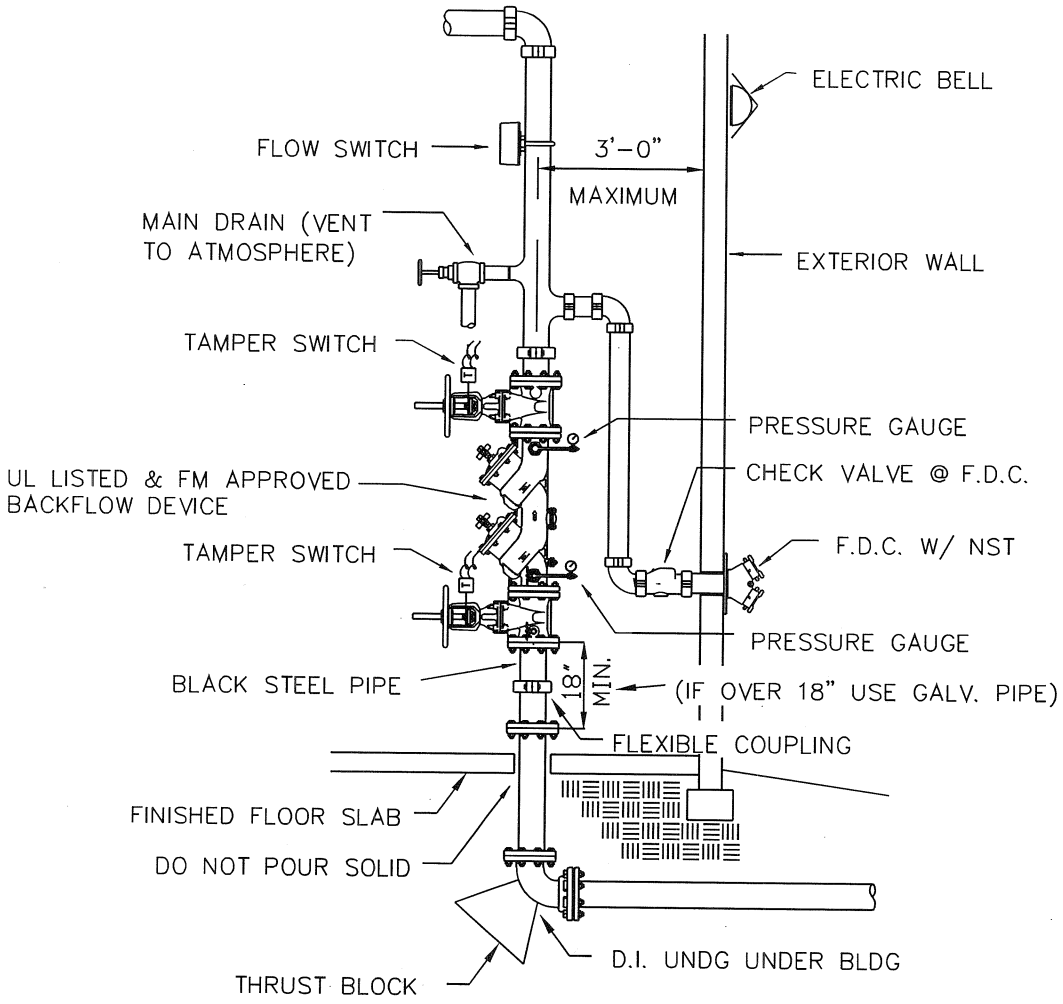


GENERAL NOTES

1. BACKFLOW PREVENTER SHALL BE TESTED FOR PROPER OPERATION PER CITY OF SCOTTSDALE REQUIREMENTS BY A CERTIFIED TESTER RECOGNIZED BY THE CITY, BEFORE A TEMPORARY CERTIFICATE OF OCCUPANCY IS ISSUED.
2. ADEQUATE CLEARANCE SHALL BE PROVIDED AROUND FIRE RISER. DIMENSIONS FROM FACE OF PIPE SHALL MEASURE A MINIMUM OF 12" OFF THE BACK WALL, 18" ON EACH SIDE AND 36" CLEAR IN FRONT WITH A FULL HEIGHT DOOR. THE FIRE LINE SHALL EXTEND A MAXIMUM OF 3' INTO THE BUILDING FROM INSIDE FACE OF WALL TO CENTER OF PIPE.
3. RISER SHALL BE HYDROSTATICALLY TESTED AT 200 PSI FOR TWO HOURS.
4. AT #1 & #4 TEST PORTS INSTALL A 1/2" BRASS NIPPLE, TEE & PLUGS W/1/2" x 1/4" MALE FLARED CONNECTION W/ CAP (INSTALL PRESSURE GAUGE ON TEE OUTLET)

DETAIL NO. 2368	City of Scottsdale Standard Details	APPROVED BY: Scottsdale Standards & Specifications Committee	FIRE SPRINKLER RISER DETAIL - VERTICAL INSTALLATION #1	DETAIL NO. 2368

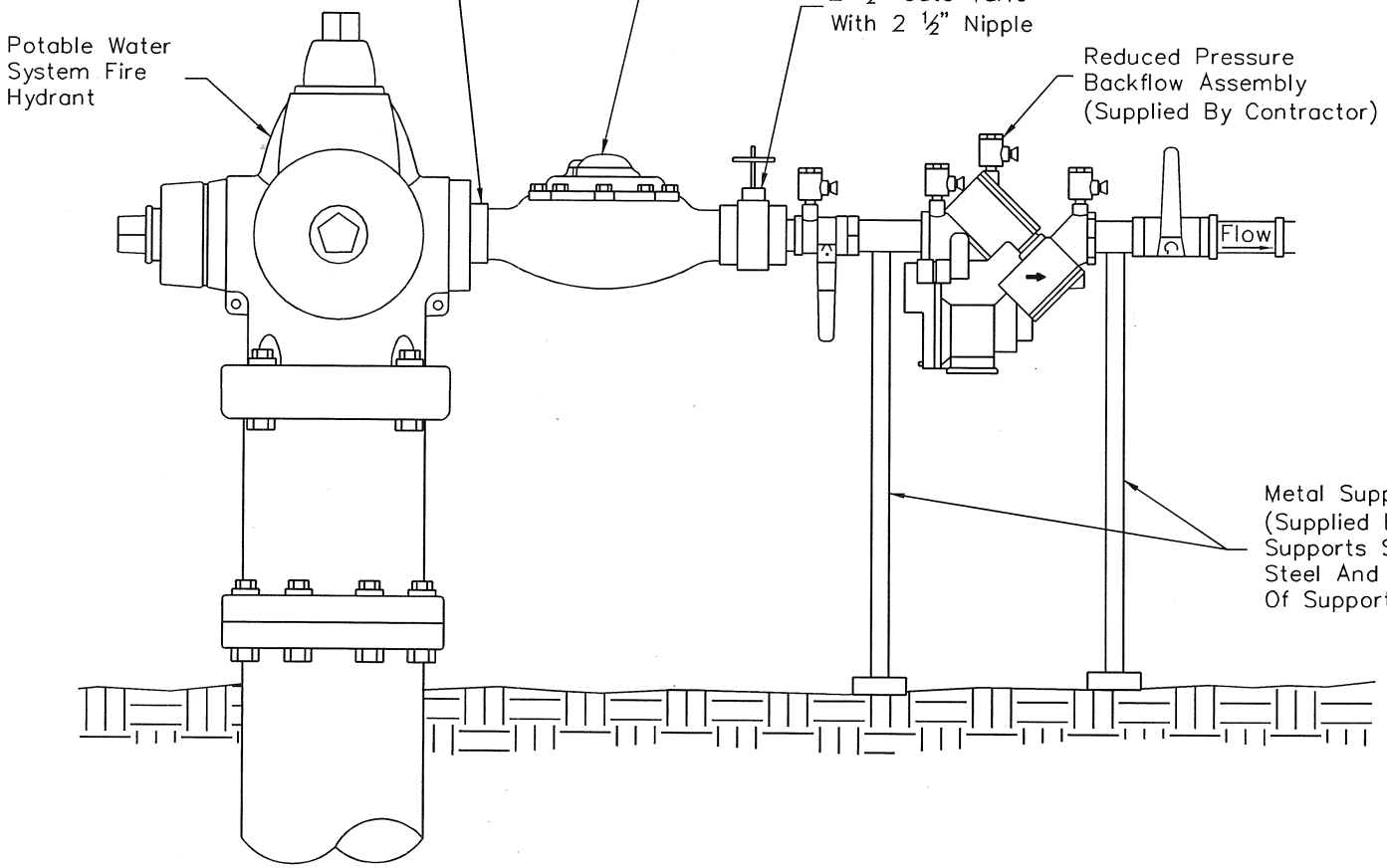
REVISED 5/17/05



GENERAL NOTES

1. BACKFLOW PREVENTER SHALL BE TESTED FOR PROPER OPERATION PER CITY OF SCOTTSDALE REQUIREMENTS BY A CERTIFIED TESTER RECOGNIZED BY THE CITY, BEFORE A TEMPORARY CERTIFICATE OF OCCUPANCY IS ISSUED.
2. ADEQUATE CLEARANCE SHALL BE PROVIDED AROUND FIRE RISER. DIMENSIONS FROM FACE OF PIPE SHALL MEASURE A MINIMUM OF 12" OFF THE BACK WALL, 18" ON EACH SIDE AND 36" CLEAR IN FRONT WITH A FULL HEIGHT DOOR. THE FIRE LINE SHALL EXTEND A MAXIMUM OF 3' INTO THE BUILDING FROM INSIDE FACE OF WALL TO CENTER OF PIPE.
3. RISER SHALL BE HYDROSTATICALLY TESTED AT 200 PSI FOR TWO HOURS.
4. AT #1 & #4 TEST PORTS INSTALL A 1/2" BRASS NIPPLE, TEE & PLUGS W/1/2" x 1/4" MALE FLARED CONNECTION W/ CAP (INSTALL PRESSURE GAUGE ON TEE OUTLET)

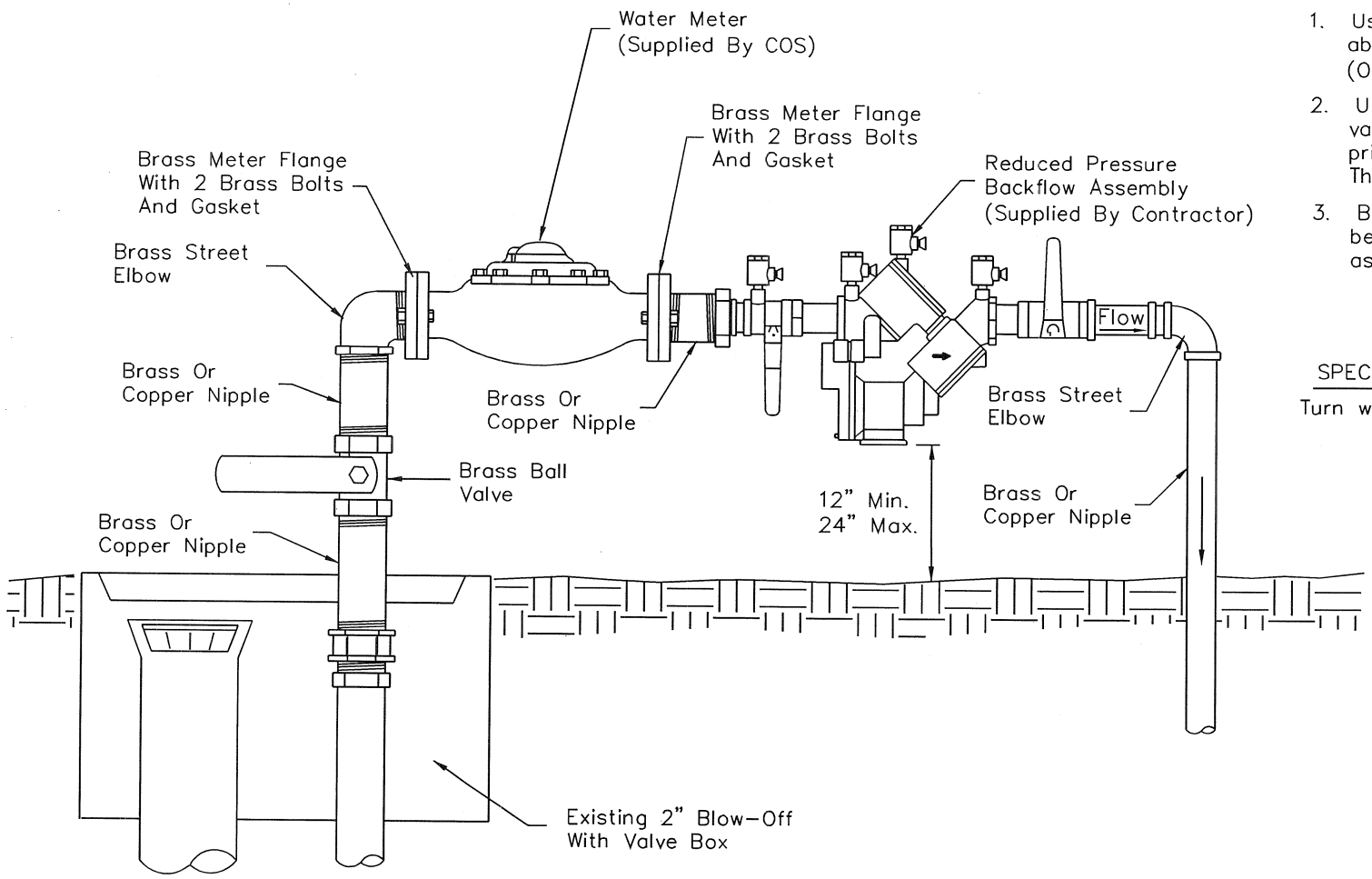
DETAIL NO. 2369	City of Scottsdale Standard Details	APPROVED BY: Scottsdale Standards & Specifications Committee	FIRE SPRINKLER RISER DETAIL - VERTICAL INSTALLATION #2	DETAIL NO. 2369



GENERAL NOTES

1. Backflow assembly shall be tested by a certified backflow assembly tester before using and also each time the meter is moved.
2. User must remove backflow assembly when hydrant meter is removed or relocated.
3. User is liable for any damage to the hydrant and all attachments to the hydrant.
4. User must use gate valve to control flow of water, not the hydrant valve assembly.
5. Call 480-312-5650 for questions.

DETAIL NO. 2380	City of Scottsdale Standard Details	APPROVED BY: Scottsdale Standards & Specifications Committee	TEMPORARY WATER SUPPLY HYDRANT METER ASSEMBLY	DETAIL NO. 2380



GENERAL NOTES

1. User must install City water meter above grade for temporary use. (One year maximum)
2. User must supply all fittings, piping, valves and approved reduced pressure principle backflow prevention assembly. The City shall supply the water meter.
3. Backflow assembly must be tested before use by a certified backflow assembly tester.

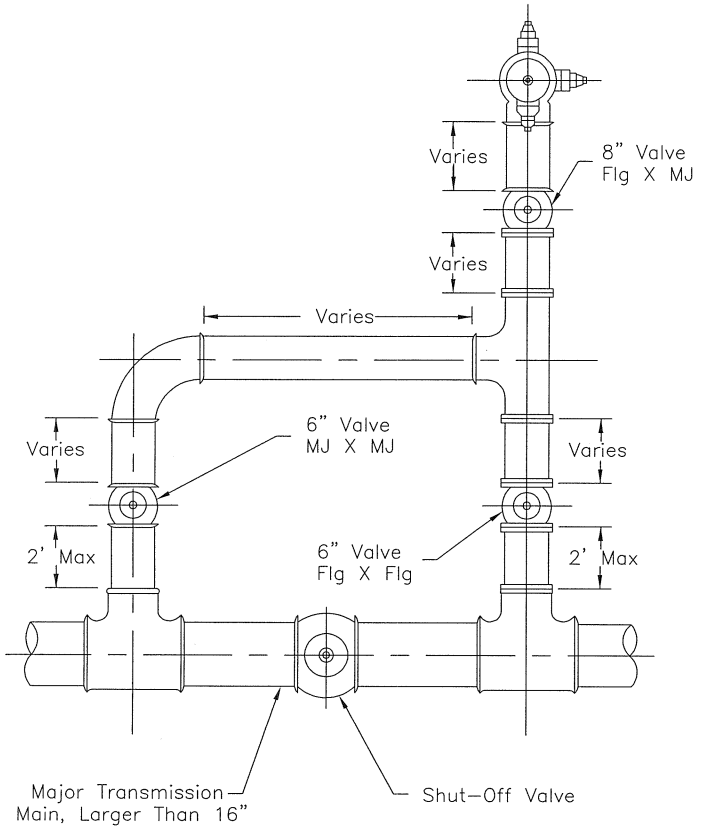
SPECIAL NOTE

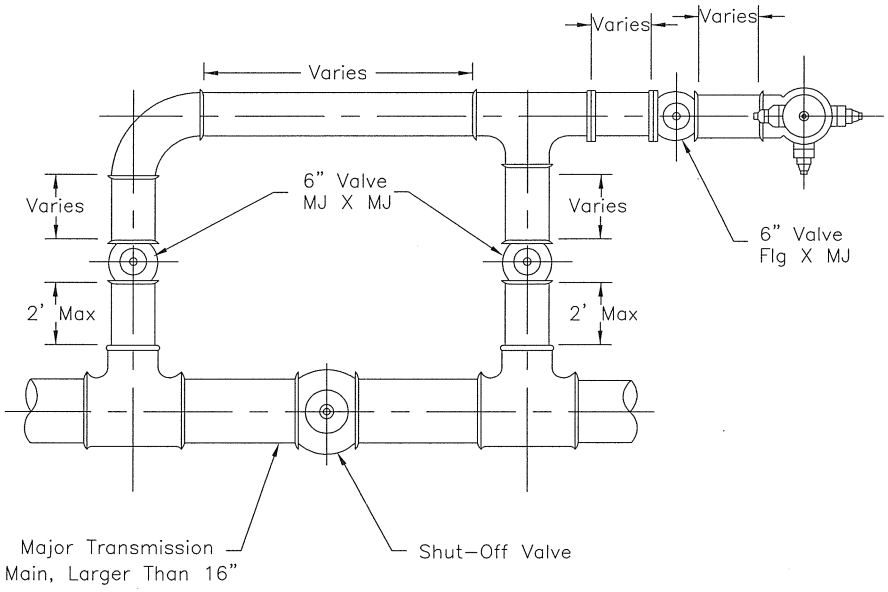
Turn water on and off slowly.

DETAIL NO. 2381	City of Scottsdale Standard Details	APPROVED BY: Scottsdale Standards & Specifications Committee	TEMPORARY BLOW-OFF FOR WATER SUPPLY	DETAIL NO. 2381

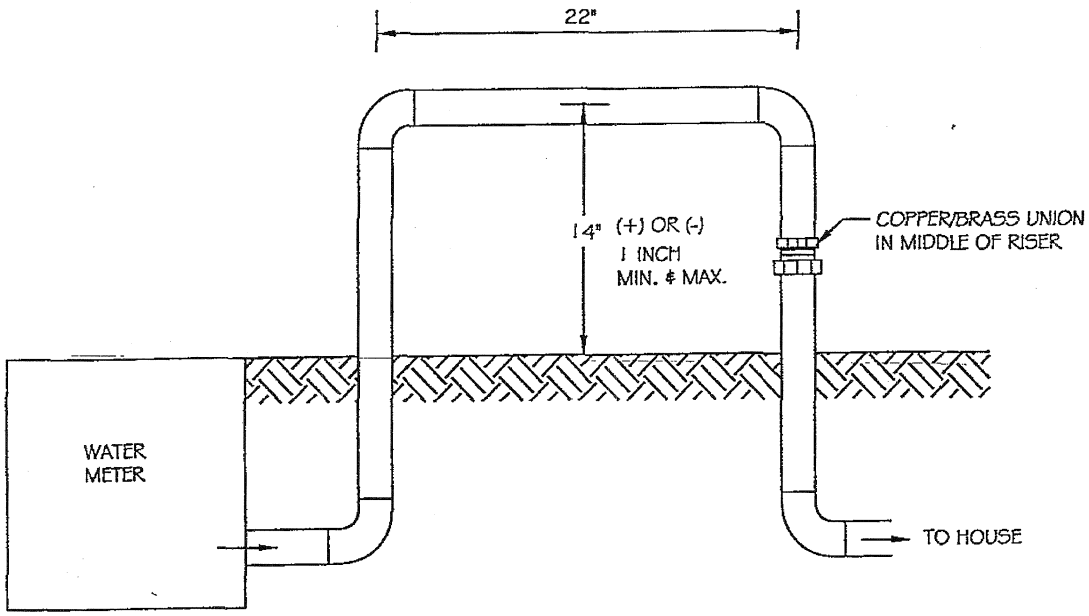
NOTES

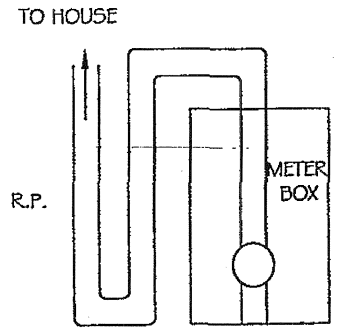
1. All joints in hydrant run–out to be restrained joints.
2. See Std. Detail G–3320 & G–3321 for valve box installation.
3. For water valve blocking see MAG Std. Detail 301.
4. For additional information see Std. Detail G–3330.





DETAIL NO. G-3336	CITY OF GOODYEAR STANDARD DETAIL	APPROVED BY: Goodyear Standards and Policies Committee 7/97	FIRE HYDRANT BYPASS ASSEMBLY	DETAIL NO. G-3336





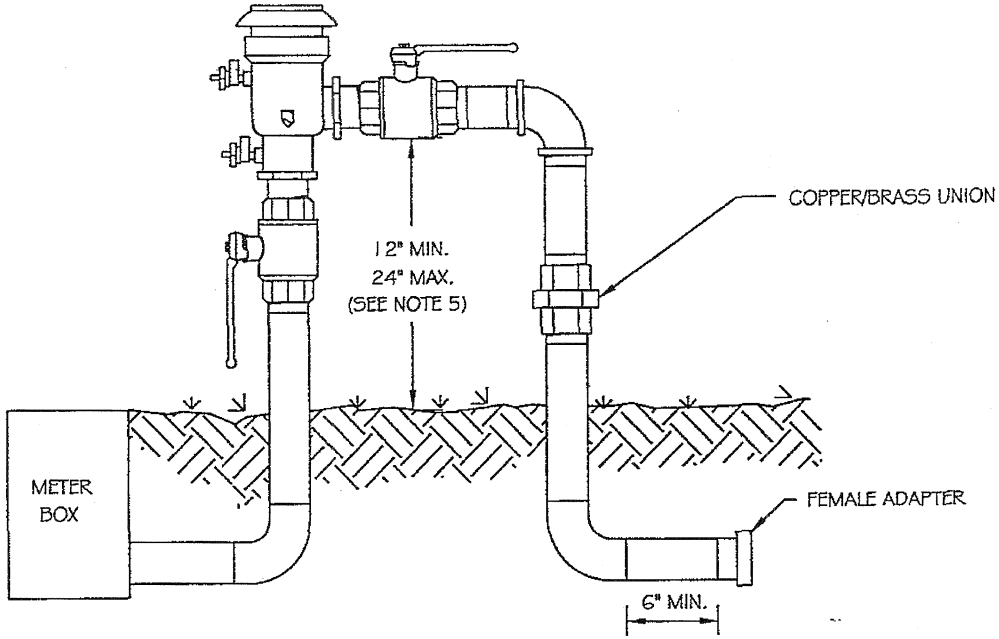
ALTERNATE INSTALLATION

SEE NOTE 8

NOTES:

1. ALL PIPE/FITTINGS TO BE TYPE 'K' RIGID COPPER.
2. INSTALL COPPER PIPE LOOP DIRECTLY BEHIND, DOWNSTREAM OF WATER METER/WATER METER BOX.
3. COPPER LOOP TO BE 14 INCHES ABOVE GRADE PLUS OR MINUS ONE INCH.
4. COPPER LOOP TO BE LEVEL MEASURED WITH CONTRACTOR'S BUBBLE LEVEL.
5. TOP OF LOOP TO BE ONE SOLID PIECE OF PIPE. NO COUPLINGS OR JOINTED PIPE.
6. COMPRESSION TYPE FITTINGS ARE NOT ALLOWED.
7. A COPPER/BRASS UNION TO BE INSTALLED IN MIDDLE OF DOWNSTREAM RISER.
8. COPPER LOOP MAY BE INSTALLED ADJACENT TO METER BOX ON A CASE BY CASE BASIS WITH A MAXIMUM OF 24 INCHES OF PIPE EXTENDED UPSTREAM OF COPPER LOOP TO ALLOW COPPER LOOP TO SIT ADJACENT TO METER/WATER BOX.
9. COPPER LOOP LENGTH TO BE 22 INCHES IN LENGTH MEASURED FROM CENTER TO CENTER OF EACH RISER PIPE.
10. THIS DETAIL IS TO BE USED IN CONJUNCTION WITH A RECLAIMED WATER SYSTEM.

C-302 **REPLACES** **103B**	CITY OF CHANDLER STANDARD DETAIL	**RESIDENTIAL BACKFLOW PREVENTION ASSEMBLY INSTALLATION - 1" OR UNDER**	APPROVED: Bryan D. Patterson CITY ENGINEER DATE: 11-19-99	DETAIL NO. **C-302** NTS



NOTES:

1. LIST OF LATEST APPROVED ASSEMBLIES ON FILE AT ENGINEERING. COPIES AVAILABLE.
2. ASSEMBLY SHALL BE APPROVED BY UNIVERSITY OF SOUTHERN CALIFORNIA (USC) FOUNDATION FOR CROSS-CONNECTION CONTROL AND HYDRAULIC RESEARCH.
3. SHUT OFF BALL VALVES MUST BE RESILIENT SEATED VALVES AS PER UNIVERSITY OF SOUTHERN CALIFORNIA (USC).
4. ASSEMBLY MUST BE INSTALLED 12 INCHES ABOVE THE HIGHEST OUTLET ON THE SYSTEM. IF THIS DISTANCE EXCEEDS 24 INCHES A REDUCED PRESSURE BACKFLOW PREVENTION ASSEMBLY, DETAIL C-311, MUST BE USED.
5. ALL PIPE/FITTINGS TO BE TYPE 'K' RIGID COPPER.
6. A MINIMUM OF ONE COPPER/BRASS UNION MUST BE INSTALLED IN THE MIDDLE OF THE DOWNSTREAM RISER.

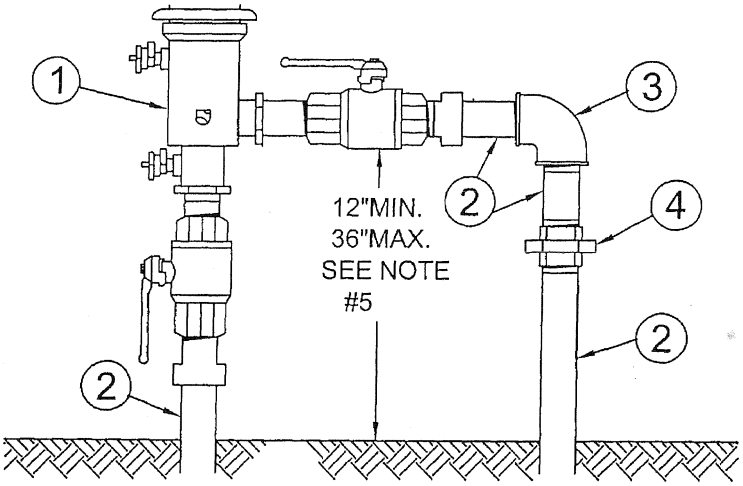
C-309 **REPLACES** **88**	CITY OF CHANDLER STANDARD DETAIL	**PRESSURE VACUUM BREAKER ASSEMBLY** **INSTALLATION - 2" AND UNDER**	APPROVED: Bryan D. Patterson CITY ENGINEER DATE: 11-19-99	DETAIL NO. **C-309** NTS

STANDARD DETAIL G-684

CITY OF GLENDALE
ENGINEERING

GLENDALE

PRESSURE VACUUM BREAKER ASSEMBLY



LEGEND:

1. APPROVED PRESSURE VACUUM BREAKER ASSEMBLY (INCLUDES BALL VALVES).
2. PIPE SPOOL, TYPE "K" COPPER, 1/2" THRU 2".
3. 90° ELL, TYPE "K" COPPER, 3/4" THRU 2".
4. PIPE UNION, COPPER OR BRASS.

NOTES:

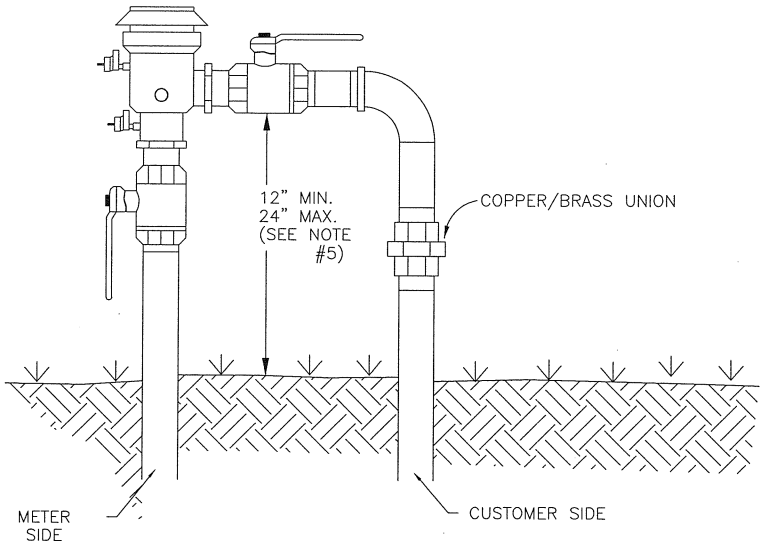
1. CONTACT CITY OF GLENDALE FOR LATEST APPROVED LIST OF BACKFLOW PREVENTION ASSEMBLIES.
2. ASSEMBLY SHALL BE APPROVED BY U.S.C. FOUNDATION FOR CROSS-CONNECTION CONTROL AND HYDRAULIC RESEARCH.
3. TWO TEST COCKS SHALL BE INSTALLED AS PER U.S.C.
4. SHUT OFF BALL VALVES MUST BE RESILIENT SEATED VALVES AS PER U.S.C.
5. ASSEMBLY MUST BE INSTALLED 12 INCHES ABOVE ALL DOWNSTREAM PIPING AND THE HIGHEST OUTLET ON THE SYSTEM. IF THIS DISTANCE EXCEEDS 36 INCHES A REDUCED PRESSURE BACKFLOW PREVENTION ASSEMBLY, G-668, MUST BE UTILIZED.
6. ASSEMBLY SHALL BE TESTED BY A CERTIFIED TESTER BEFORE FINAL APPROVAL.

APPROVED BY: Larry J Broyles
CITY ENGINEER

6/28/02
DATE

REVISED : JUNE 2002

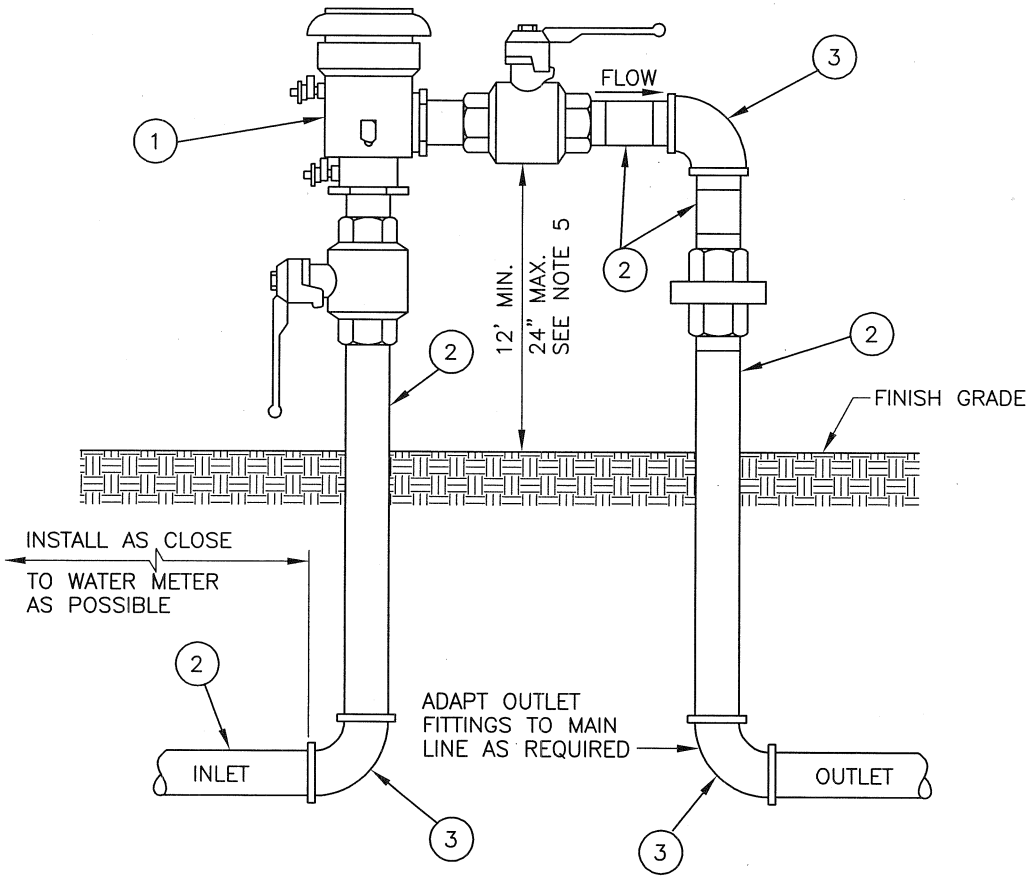
PREVIOUS :



NOTES:

1. CONTACT CITY OF PHOENIX WATER SERVICES DEPARTMENT, WATER QUALITY DIVISION FOR LIST OF APPROVED PRESSURE VACUUM BREAKER ASSEMBLIES.
2. ASSEMBLY SHALL BE APPROVED BY U.S.C. FOUNDATION FOR CROSS-CONNECTION CONTROL AND HYDRAULIC RESEARCH.
3. TWO (2) TEST COCKS SHALL BE FITTED WITH BRASS PLUGS INSTALLED WITH TEFLON TAPE.
4. SHUTOFF BALL VALVES MUST BE RESILIENT SEATED VALVES AS PER U.S.C..
5. ASSEMBLY MUST BE INSTALLED 12 INCHES ABOVE THE HIGHEST OUTLET ON THE SYSTEM. IF THE DISTANCE EXCEEDS 24 INCHES A REDUCED PRESSURE BACKFLOW PREVENTION ASSEMBLY MUST BE USED.
6. ALL PIPE/FITTINGS TO BE TYPE "K" COPPER.
7. A COPPER/BRASS UNION MUST BE INSTALLED IN THE MIDDLE OF THE DOWNSTREAM RISER.
8. INSTALL THE BACKFLOW PREVENTION ASSEMBLY IMMEDIATELY DOWNSTREAM OF THE CITY WATER METER.
9. COPPER FITTINGS TO BE CONNECTED WITH LEAD-FREE SOLDER JOINTS.

DETAIL NO. G-3355	CITY OF GOODYEAR STANDARD DETAIL	APPROVED BY: Goodyear Standards and Policies Committee 7/97	PRESSURE VACUUM BREAKER ASSEMBLY INSTALLATION - 2" AND UNDER	DETAIL NO. G-3355



PRESSURE VACUUM BREAKER ASSEMBLY

GENERAL NOTES

1. CONTACT CITY OF MESA, WATER QUALITY SERVICES FOR LATEST LIST OF APPROVED BACKFLOW PREVENTERS OR CERTIFIED TESTERS.
2. THE REQUIRED BACKFLOW PREVENTION ASSEMBLY SHALL BE A MANUFACTURER AND MODEL NUMBER DESIGNATED IN THE CURRENT CITY OF MESA LIST OF APPROVED BACKFLOW PREVENTION ASSEMBLIES.
3. THE BACKFLOW PREVENTION ASSEMBLY SHALL BE TESTED AND APPROVED BY A CERTIFIED TECHNICIAN DESIGNATED IN THE CURRENT CITY OF MESA LIST OF APPROVED INSPECTORS PRIOR TO THE REQUEST FOR FINAL INSPECTION.
4. ALL COPPER PIPE JOINTS SHALL BE SOLDERED. THE SOLDER ALLOY SHALL COMPLY W/ASTM B 32 HAVING A SILVER CONTENT OF NOT LESS THAN 3.4% INTENDED FOR JOINING COPPER PIPES FOR POTABLE WATER SYSTEMS (GRADES SN 94, SN 95, AND SN 96). THE FLUX SHALL BE TYPE OA FOR GENERAL SOLDERING ON COPPER.
5. INSTALL BRASS PIPE PLUG IN EACH TESTCOCK ON THE ASSEMBLY.
6. PRESSURE VACUUM BREAKERS MUST BE INSTALLED AT LEAST 12–INCHES ABOVE ALL DOWNSTREAM PIPING AND THE HIGHEST OUTLET ON THE SYSTEM. IF THIS DISTANCE EXCEEDS 24–INCHES, A REDUCED PRESSURE PRINCIPLE BACKFLOW PREVENTION ASSEMBLY MUST BE UTILIZED. SEE C.O.M. DETAIL M–31.3.
7. FINISHED GRADE UNDER THE BACKFLOW PREVENTER SHALL BE COMPACTED TO 95% OF MAXIMUM DENSITY.
8. PROVIDE 12–INCH MINIMUM CLEARANCE BETWEEN BACKFLOW PREVENTION ASSEMBLY AND PERMANENT STRUCTURES OR LANDSCAPE VEGETATION.

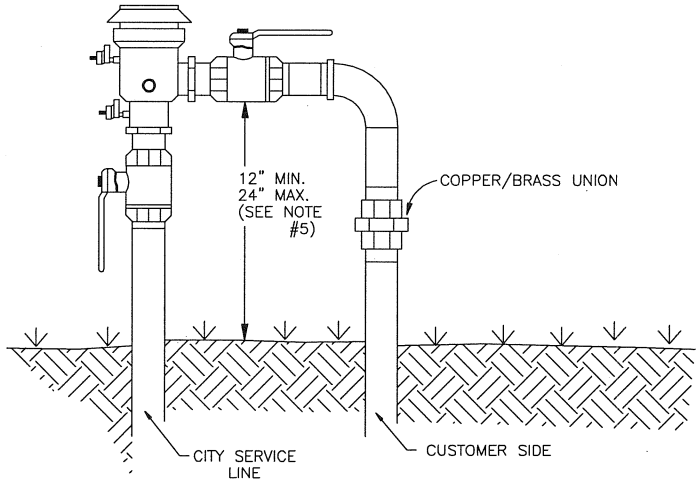
LIST OF MATERIALS

(1) APPROVED PRESSURE VACUUM BREAKER ASSEMBLY, BALL VALVES INCLUDED.
(2) TYPE "L" COPPER PIPE, 3/4" THRU 2".
(3) 90° ELL, COPPER, 3/4" THRU 2".
(4) PIPE UNION, BRASS OR COPPER

PRESSURE VACUUM BREAKER ASSEMBLY FOR ASSEMBLIES 2 INCHES AND LESS

DETAIL NO. M–31.5

REV. 02/01/02

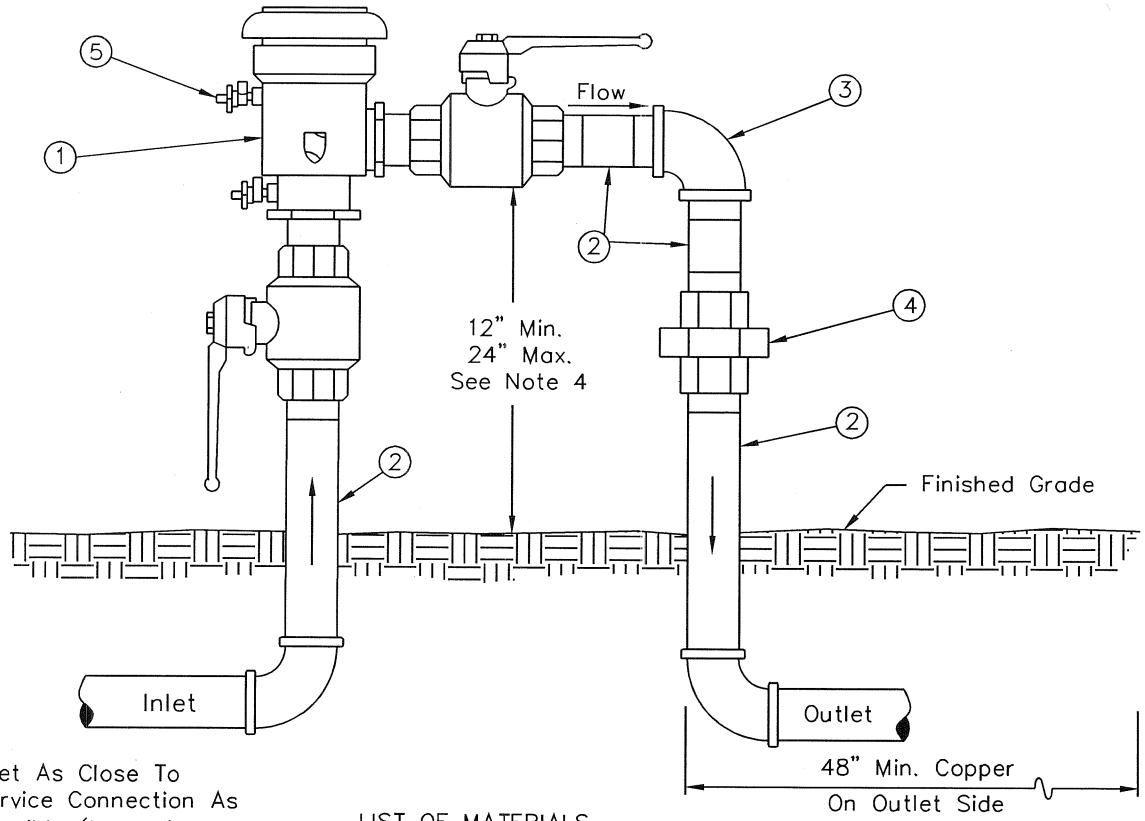


NOTES:

1. CONTACT CITY OF PHOENIX DEVELOPMENT SERVICES DEPARTMENT, CROSS-CONNECTION CONTROL FOR A LIST OF APPROVED PRESSURE VACUUM BREAKER ASSEMBLIES.
2. ASSEMBLY SHALL BE APPROVED BY U.S.C. FOUNDATION FOR CROSS-CONNECTION CONTROL AND HYDRAULIC RESEARCH.
3. TWO (2) TEST COCKS SHALL BE FITTED WITH BRASS PLUGS INSTALLED WITH TEFLON TAPE.
4. SHUTOFF BALL VALVES MUST BE RESILIENT SEATED VALVES AS PER U.S.C..
5. ASSEMBLY MUST BE INSTALLED 12 INCHES ABOVE THE HIGHEST OUTLET ON THE SYSTEM. IF THE DISTANCE EXCEEDS 24 INCHES A REDUCED PRESSURE BACKFLOW PREVENTION ASSEMBLY MUST BE USED.
6. ALL PIPE/FITTINGS TO BE TYPE "K" COPPER.
7. A COPPER/BRASS UNION MUST BE INSTALLED IN THE MIDDLE OF THE DOWNSTREAM RISER.
8. INSTALL THE BACKFLOW PREVENTION ASSEMBLY IMMEDIATELY DOWNSTREAM OF THE CITY WATER METER.
9. COPPER FITTINGS TO BE CONNECTED WITH LEAD-FREE SOLDER JOINTS.
10. TRANSITION FROM "K" COPPER TO OTHER APPROVED PIPING MATERIALS SHALL BE IN THE HORIZONTAL PIPING A MINIMUM OF 12" BELOW GRADE.

DETAIL NO.			APPROVED		DETAIL NO.
P1355	**City of Phoenix STANDARD DETAIL**	PRESSURE VACUUM BREAKER ASSEMBLY INSTALLATION – 2" AND UNDER	CITY ENGINEER	6-27-01 DATE	P1355

REVISED 5/05/04



Inlet As Close To Service Connection As Possible (Immediately After Water Meter). Copper On Inlet Side.

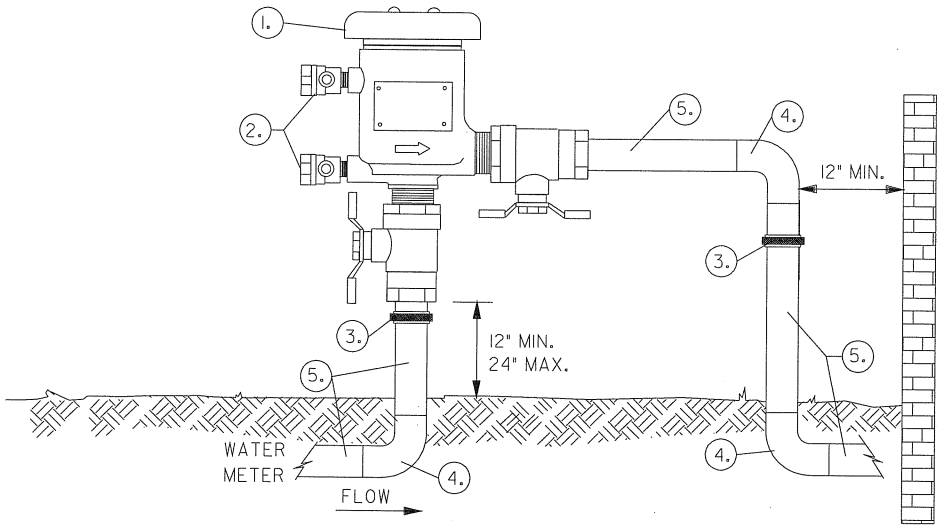
LIST OF MATERIALS

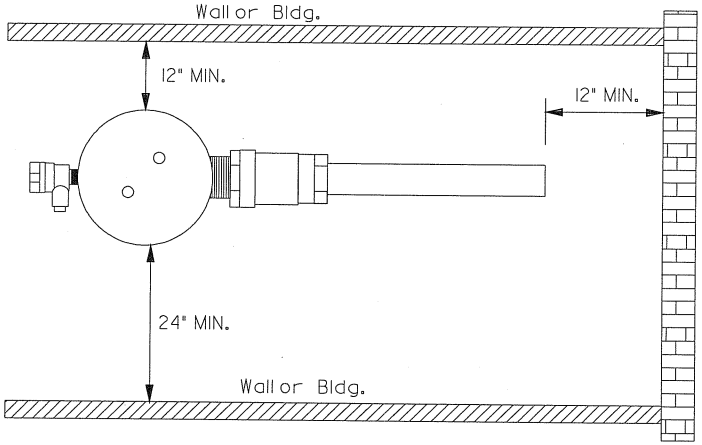
① Approved pressure vacuum breaker assembly, ball valves included.
② Pipe spool, type "L" hard copper, 1/2" thru 2".
③ 90° ell, copper, 1/2" thru 2".
④ Pipe union, brass or copper.
⑤ Test cocks with brass plugs or adaptors with caps installed. (2 required)

GENERAL NOTES

1. Backflow assemblies must be tested by a certified tester that is recognized by the City of Scottsdale.
2. Pressure vacuum breakers must be installed at least 12" above all downstream piping.
3. If this distance exceeds 24 inches, a reduced pressure principle backflow prevention assembly must be utilized. See Detail 2354.
4. Copper fittings shall be connected with lead free solder joints.
5. Finished grade underneath the backflow pre-venter shall be at 95% compaction.
6. All nipples to be copper or brass.
7. Piping under the City right of way must be type "K" copper.
8. Call for underground inspection before backfilling trench.
9. Approvals for backflow assemblies must have Seal Approval from the American Society of Sanitation Engineers.

DETAIL NO. 2355	City of Scottsdale Standard Details	APPROVED BY: Scottsdale Standards & Specifications Committee	PRESSURE VACUUM BREAKER ASSEMBLY FOR ASSEMBLIES 1/2 INCH THRU 2 INCHES	DETAIL NO. 2355





MATERIALS LIST

1. USC FCCCHR Approved Pressure Vacuum Breaker Backflow Assembly.
2. Test Cocks.
3. Brass 3 pc. Union (One Required)
4. Copper x Copper 90 Ells.
5. Type "K" Copper Tubing.

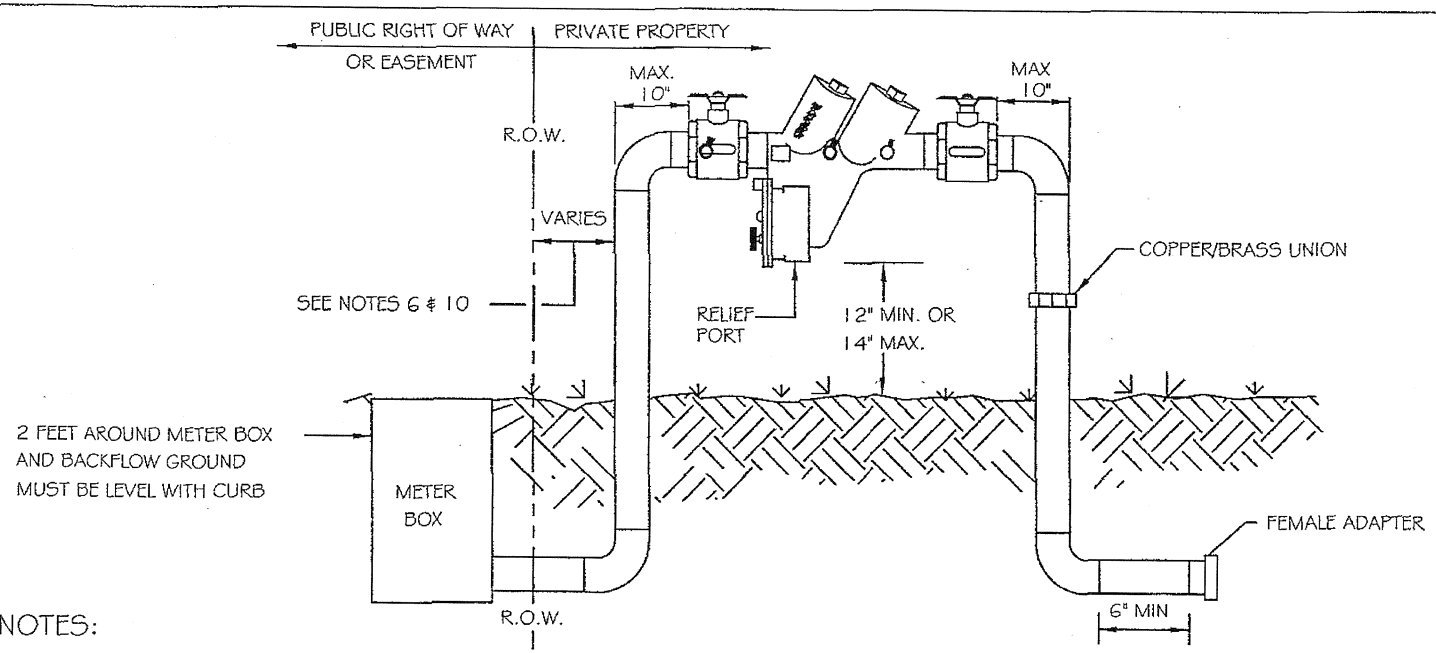
NOTES:

1. Contact City of Tempe Environmental Services Section at 350-8200 for Latest List of Approved Assemblies, (Assembly Must be Tested Before Certificated of Occupancy will be Issued.)
2. Copper Fittings shall be Connected with Lead Free Solder.
3. Details for Screening shall be Submitted to City of Tempe Engineering and Development Services Departments for Approval.
4. Screening Required: ¾Thru 2 inch Assemblies shall be Screened by the Use of Plant Materials.
5. Clearance: Minimum 12 Inches Away from any Wall or Structure. Minimum 24 Inches Away from Any Wall or Structure if Test Cocks Face Wall or Structure. Minimum 12 Inches Above Finish Grade, Maximum 24 Inches.

APPROVED: ORIGINAL SIGNATURE ON FILE AT THE CITY OF TEMPE

CITY ENGINEER — DATE

CITY OF TEMPE PUBLIC WORKS DEPARTMENT	PRESSURE VACUUM BREAKER BACKFLOW ASSEMBLY	DETAIL T-211 REVISED 1998



NOTES:

1. ALL PIPE/FITTINGS TO BE TYPE "K" RIGID COPPER.
2. INSTALL BACKFLOW PREVENTION ASSEMBLY WITH RELIEF PORT FACING TOWARD THE GROUND.
3. BACKFLOW PREVENTION INSTALLATION MUST BE LEVEL, AND INSTALLED A MINIMUM OF 12 INCHES AND A MAXIMUM OF 14 INCHES FROM RELIEF PORT TO FINAL GRADE.
4. SHUTOFF VALVES TO BE RESILIENT BALL TYPE WITH REMOVABLE HANDLES.
5. COMPRESSION TYPE FITTINGS ARE NOT ALLOWED.
6. INSTALL THE BACKFLOW PREVENTION ASSEMBLY IMMEDIATELY DOWNSTREAM OF THE LINE SETTER AND WITHIN 6" OF THE CITY WATER METER.
7. A COPPER/BRASS UNION INSTALLED IN THE MIDDLE OF THE DOWNSTREAM RISER IS NOT REQUIRED IF BACKFLOW ASSEMBLY HAS UNIONS INCORPORATED WITHIN THE ASSEMBLY.
8. LIST OF LATEST APPROVED ASSEMBLIES ON FILE AT ENGINEERING. COPIES AVAILABLE.
9. ASSEMBLY SHALL BE APPROVED BY UNIVERSITY OF SOUTHERN CALIFORNIA (USC) FOUNDATION FOR CROSS-CONNECTION CONTROL AND HYDRAULIC RESEARCH.
10. THERE SHALL BE NO TAPS OF ANY SORT ALLOWED BETWEEN THE METER AND THE BACKFLOW PREVENTION ASSEMBLY.

C-311 **REPLACES** **90**	CITY OF CHANDLER STANDARD DETAIL	**REDUCED PRESSURE-PRINCIPLE BACKFLOW PREVENTION ASSEMBLY INSTALLATION - 3" AND UNDER**	APPROVED: CITY ENGINEER DATE: January 11, 2002	DETAIL NO. **C-311** NTS

LIST OF MATERIALS

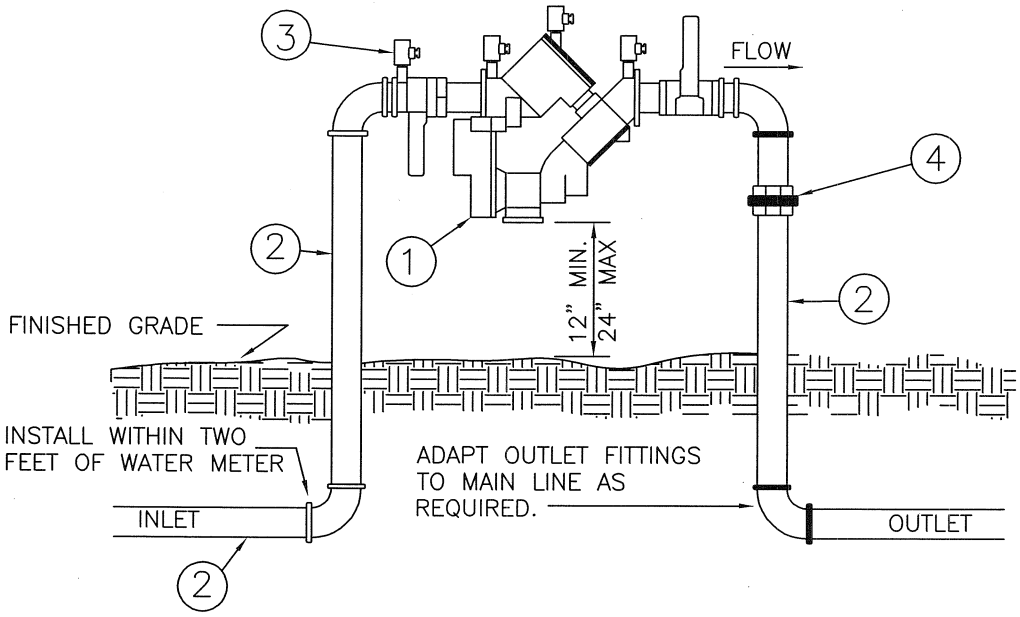
(1) APPROVED REDUCED PRESSURE PRINCIPLE BACKFLOW PREVENTER ASSEMBLY, BALL VALVES INCLUDED.

(2) PIPING SHALL BE TYPE "K" HARD COPPER (3/4" THRU 2 1/2") USING LEAD–FREE SOLDER. 3" OR LARGER TO BE D.I.P..

(3) BRASS PLUGS ARE REQUIRED ON ALL TEST COCKS.

(4) BRASS OR COPPER UNION (INSTALL ON DISCHARGE SIDE.).

(5) HEIGHT REQUIREMENTS FOR ASSEMBLIES (12" Min. 24" Max.).



GENERAL NOTES

1. CONTACT THE TOWN OF GILBERT BACKFLOW PREVENTION DEPARTMENT FOR THE MOST CURRENT LIST OF APPROVED BACKFLOW PREVENTION ASSEMBLIES.
2. ASSEMBLY SHALL BE APPROVED BY U.S.C. FOUNDATION FOR CROSS CONNECTION AND HYDRAULIC RESEARCH.
3. ABOVE GROUND INSTALLATIONS SHALL BE PROTECTED BY GUARD POSTS. SEE DETAIL 83–B
4. ASSEMBLY SHALL BE INSTALLED LEVEL AND NOT IN A FLOOD PLAIN.
5. ASSEMBLY SHALL BE TESTED PRIOR TO BEING ACCEPTED. (CONTACT T.O.G. BF DEPT. FOR LIST OF CERTIFIED TESTERS.).
6. ASSEMBLY SHALL NOT BE INSTALLED ANY CLOSER THAN 24" FROM A WALL OR OBSTRUCTION (IF TEST COCKS FACE THE WALL) OR 12" FROM A WALL (IF TEST COCKS FACE AWAY).
7. CONCRETE SUPPORT PAD SHALL BE A MINIMUM OF 12" WIDE BY LENGTH OF PRESSURE ASSEMBLY. SUPPORT STANDS TO BE PROVIDED FOR 3" ASSEMBLY AND LARGER.
8. FINISHED GRADE UNDERNEATH ASSEMBLY SHALL BE AT 95% COMPACTION.
9. ASSEMBLY SHALL NOT BE PLACED FARTHER THAN 2' FROM THE WATER METER.

DETAIL NO. 83L	TOWN OF GILBERT STANDARD DETAIL	REDUCED PRESSURE PRINCIPLE DEVICE FOR LANDSCAPE ONLY	REVISED 1/2005	DETAIL NO. 83L

STANDARD DETAIL G-669

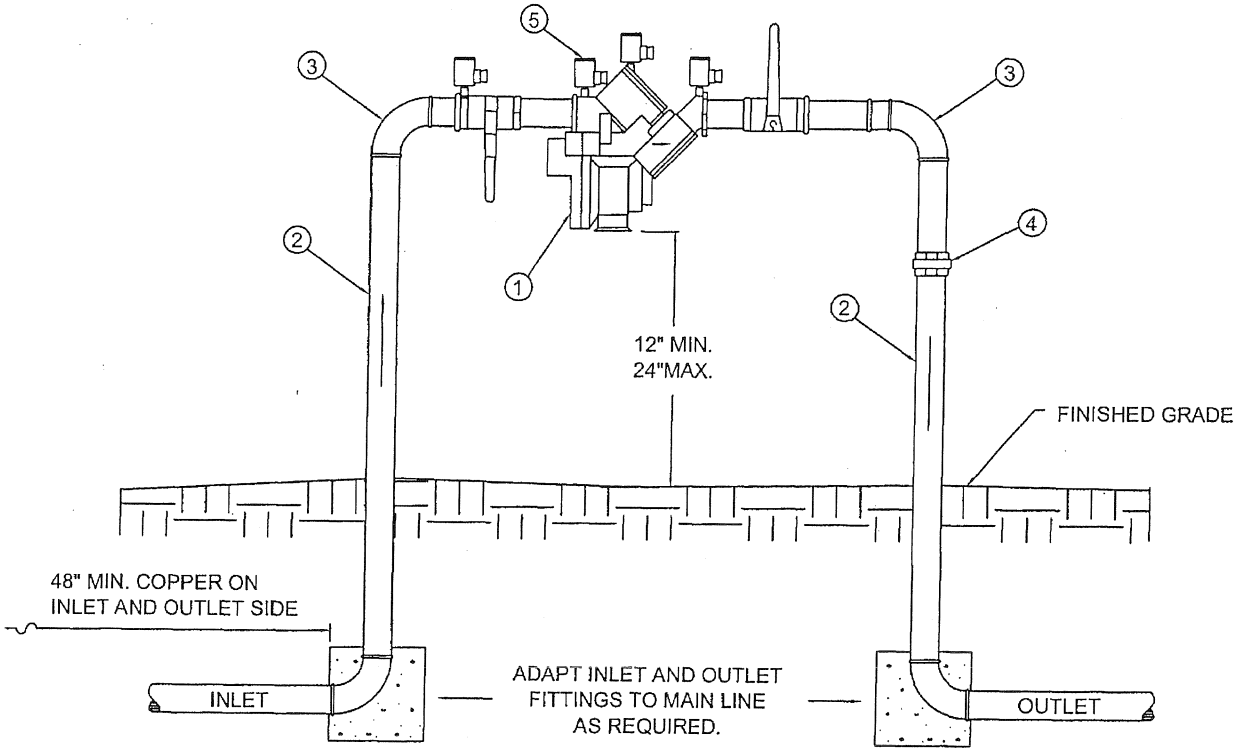
CITY OF GLENDALE
ENGINEERING

GLENDALE

REDUCED PRESSURE BACKFLOW PREVENTION ASSEMBLY FOR ASSEMBLIES 2 1/2 INCHES AND LESS

GENERAL NOTES

1. CONTACT CITY OF GLENDALE, FOR LATEST LIST OF APPROVED BACKFLOW PREVENTION ASSEMBLIES OR CERTIFIED TESTERS.
2. BACKFLOW PREVENTERS MUST BE TESTED BY A CERTIFIED TESTER BEFORE FINAL APPROVAL IS ISSUED.
3. COPPER FITTINGS SHALL BE CONNECTED WITH LEAD FREE SOLDER JOINTS.
4. FINISHED GRADE UNDERNEATH THE BACKFLOW PREVENTER SHALL BE AT 95% COMPACTION.
5. SEE C.O.G. STD. DETAIL G-673 FOR METAL CAGE DETAILS.



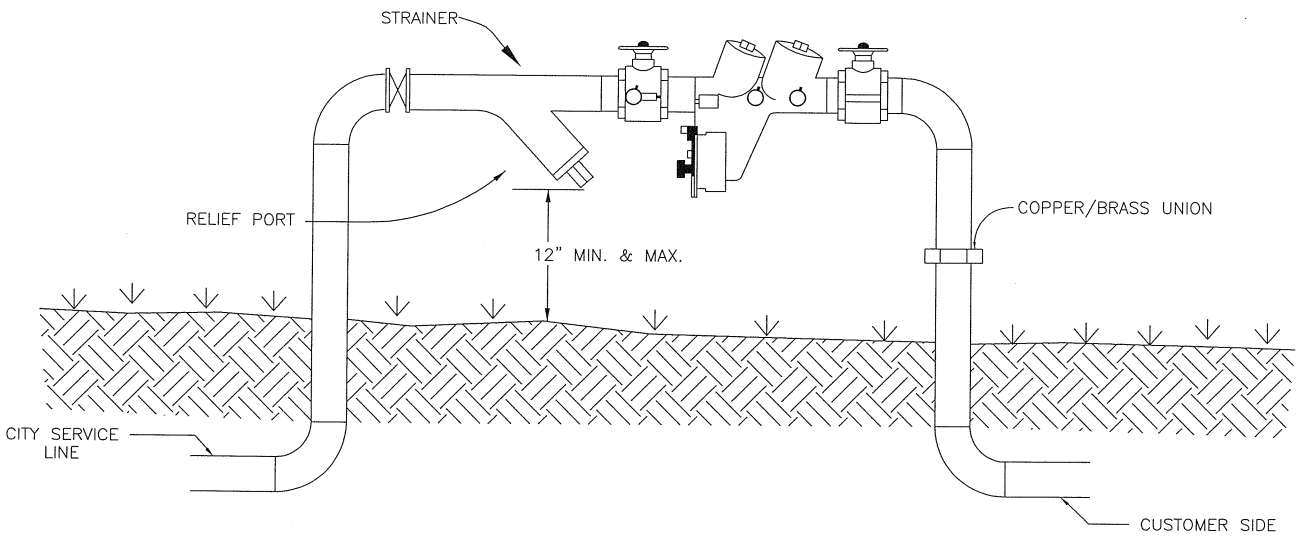
LIST OF MATERIALS

1. APPROVED REDUCED PRESSURE PRINCIPLE BACKFLOW PREVENTION ASSEMBLY, BALL VALVES INCLUDED.
2. PIPE SPOOL, TYPE "K" COPPER, 3/4" THRU 2 1/2".
3. 90° ELL, COPPER, 3/4" THRU 2 1/2".
4. PIPE UNION, BRASS OR COPPER.
5. TEST COCKS WITH BRASS PLUGS INSTALLED (4 REQUIRED).

APPROVED BY: Larry J. Broyles
CITY ENGINEER

6/28/02
DATE

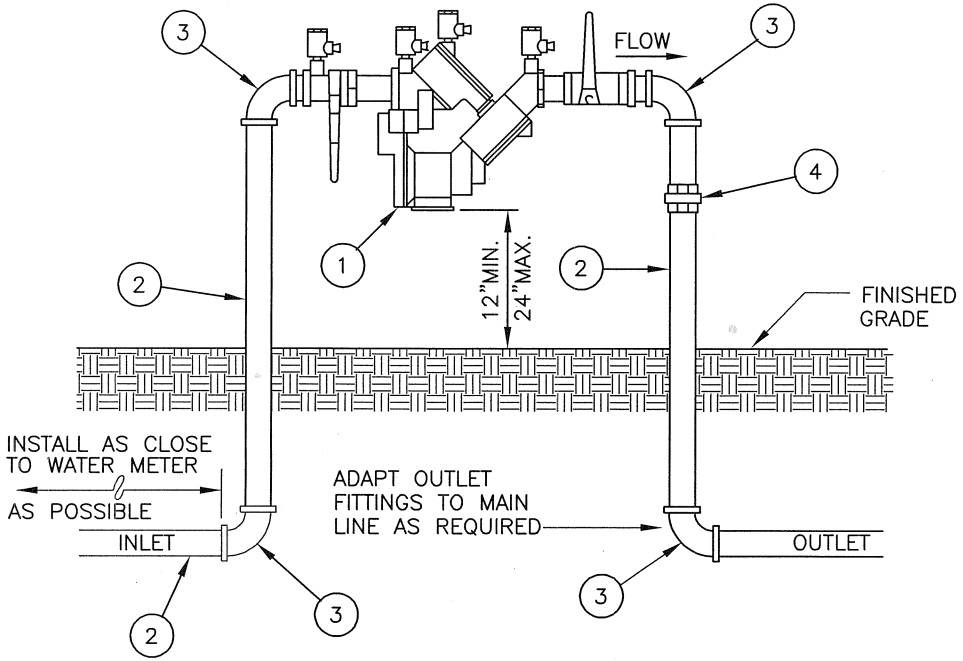
REVISED : JUNE 2002



NOTES:

1. ALL PIPE/FITTINGS TO BE TYPE "K" COPPER.
2. ASSEMBLY SHALL BE APPROVED BY U.S.C. FOUNDATION FOR CROSS-CONNECTION CONTROL AND HYDRAULIC RESEARCH.
3. INSTALL BACKFLOW PREVENTION ASSEMBLY WITH RELIEF PORT FACING TOWARD THE GROUND.
4. BACKFLOW PREVENTION ASSEMBLY MUST BE LEVEL AND INSTALLED A MINIMUM AND A MAXIMUM OF 12 INCHES FROM RELIEF PORT TO FINAL GRADE.
5. PAVER CONCRETE BLOCK UNDER RELIEF PORT, SET AT FINAL GRADE.
6. TEST COCKS, (4) SHALL BE FITTED WITH BRASS PLUGS AND INSTALLED WITH TEFLON TAPE.
7. SHUTOFF VALVES TO BE RESILIENT BALL TYPE WITH REMOVABLE HANDLES.
8. COMPRESSION TYPE FITTINGS ARE NOT ALLOWED.
9. INSTALL THE BACKFLOW PREVENTION ASSEMBLY IMMEDIATELY DOWNSTREAM OF THE CITY WATER METER.
10. A COPPER/BRASS UNION MUST BE INSTALLED IN THE MIDDLE OF THE DOWNSTREAM RISER.
11. CONTACT CITY OF PHOENIX WATER SERVICES DEPARTMENT, WATER QUALITY DIVISION FOR LIST OF APPROVED BACKFLOW PREVENTION ASSEMBLIES.
12. COPPER FITTINGS SHALL BE CONNECTED WITH LEAD-FREE SOLDER JOINT.

DETAIL NO. G-3354	CITY OF GOODYEAR STANDARD DETAIL	APPROVED BY: Goodyear Standards and Policies Committee 7/97	REDUCED PRESSURE PRINCIPLE BACKFLOW PREVENTION ASSEMBLY INSTALLATION - 2 1/2" AND UNDER	DETAIL NO. G-3354



REDUCED PRESSURE PRINCIPLE BACKFLOW PREVENTION ASSEMBLY

LIST OF MATERIALS

(1) APPROVED REDUCED PRESSURE PRINCIPLE BACKFLOW PREVENTION ASSEMBLY, BALL VALVES INCLUDED

(2) TYPE "L" COPPER PIPE, 3/4" THRU 2"

(3) 90° ELL, COPPER, 3/4" THRU 2"

(4) PIPE UNION, BRASS OR COPPER

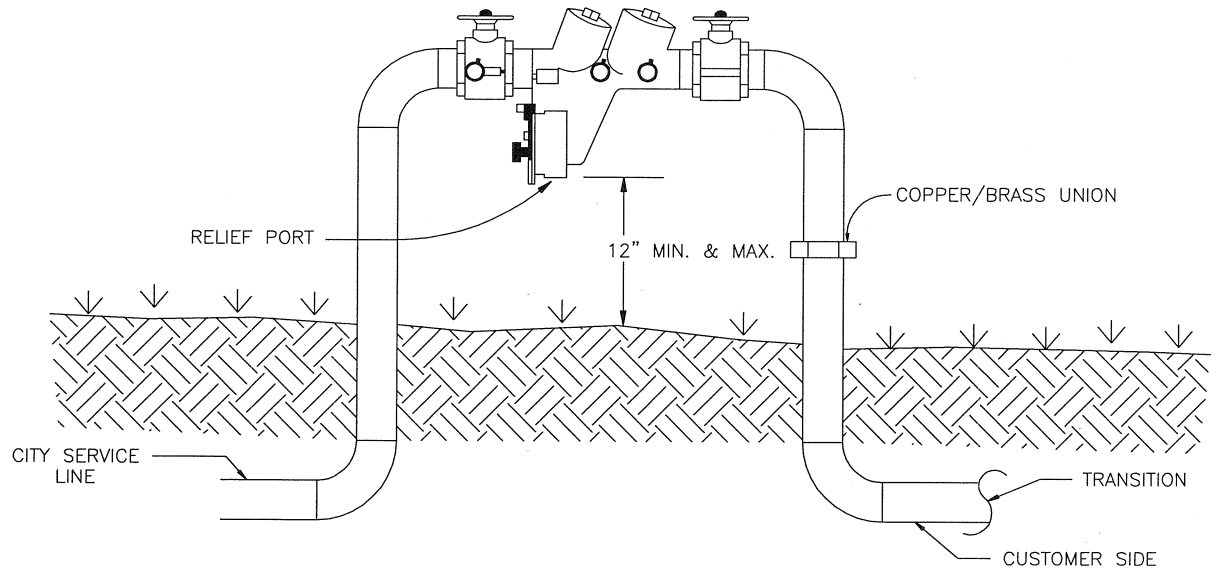
GENERAL NOTES

1. CONTACT CITY OF MESA, WATER QUALITY SERVICES FOR LATEST LIST OF APPROVED BACKFLOW PREVENTERS OR CERTIFIED TESTERS.
2. THE REQUIRED BACKFLOW PREVENTION ASSEMBLY SHALL BE A MANUFACTURER AND MODEL NUMBER DESIGNATED IN THE CURRENT CITY OF MESA LIST OF APPROVED BACKFLOW PREVENTION ASSEMBLIES.
3. THE BACKFLOW PREVENTION ASSEMBLY SHALL BE TESTED AND APPROVED BY A CERTIFIED TECHNICIAN DESIGNATED IN THE CURRENT CITY OF MESA LIST OF APPROVED INSPECTORS PRIOR TO THE REQUEST FOR FINAL INSPECTION.
4. ALL COPPER PIPE JOINTS SHALL BE SOLDERED. THE SOLDERED ALLOY SHALL COMPLY W/ASTM B 32 HAVING A SILVER CONTENT OF NOT LESS THAN 3.4% INTENDED FOR JOINING COPPER PIPES FOR POTABLE WATER SYSTEMS (GRADES SN 94, SN 95, OR SN 96). THE FLUX SHALL BE TYPE OA FOR GENERAL SOLDERING ON COPPER.
5. INSTALL A BRASS PIPE PLUG IN EACH TESTCOCK ON THE ASSEMBLY.
6. FINISHED GRADE UNDER THE BACKFLOW PREVENTER SHALL BE COMPACTED TO 95% OF MAXIMUM DENSITY.
7. PROVIDE 12–INCH MINIMUM CLEARANCE BETWEEN BACKFLOW PREVENTION ASSEMBLY AND PERMANENT STRUCTURES OR LANDSCAPE VEGETATION.

REDUCED PRESSURE PRINCIPLE BACKFLOW PREVENTION ASSEMBLY; FOR ASSEMBLIES 2 INCHES AND LESS

DETAIL NO. M–31.3

REV.02/01/02

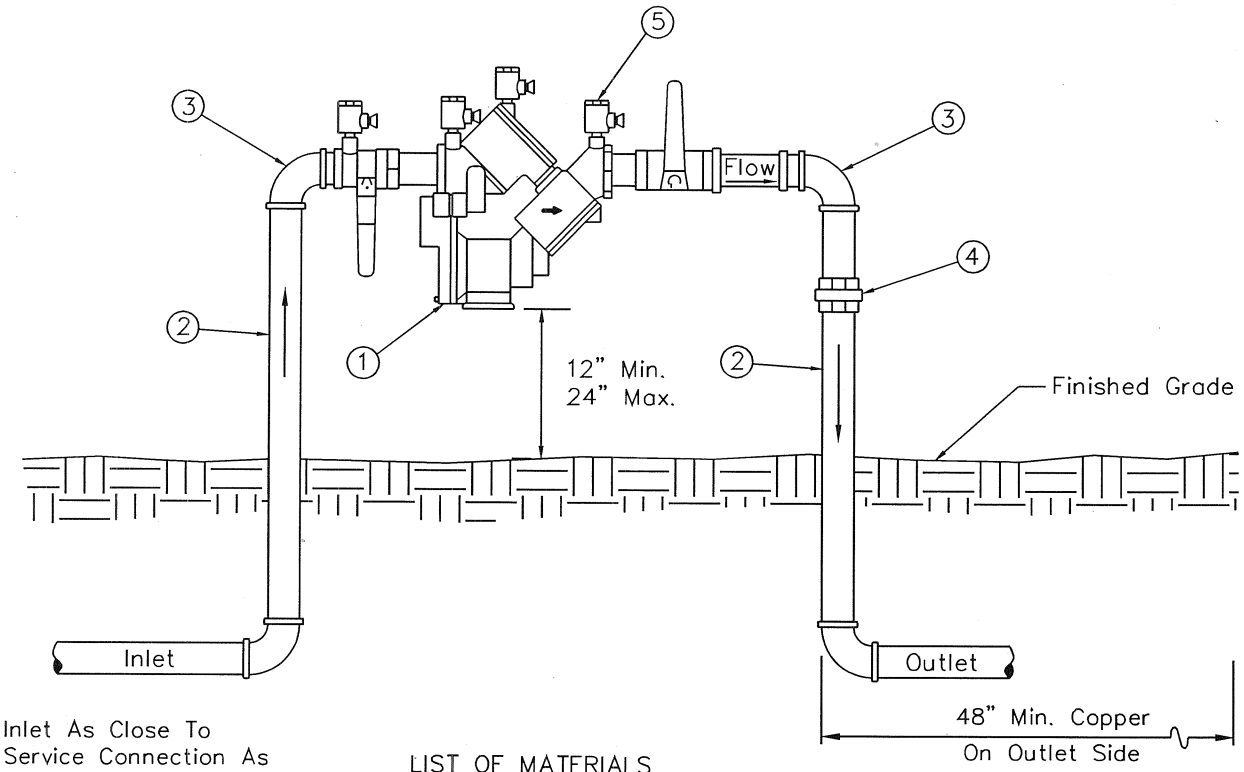


NOTES:

1. ALL PIPE/FITTINGS TO BE TYPE "K" COPPER.
2. ASSEMBLY SHALL BE APPROVED BY U.S.C. FOUNDATION FOR CROSS-CONNECTION CONTROL AND HYDRAULIC RESEARCH.
3. INSTALL BACKFLOW PREVENTION ASSEMBLY WITH RELIEF PORT FACING TOWARD THE GROUND.
4. BACKFLOW PREVENTION ASSEMBLY MUST BE LEVEL AND INSTALLED A MINIMUM AND A MAXIMUM OF 12 INCHES FROM RELIEF PORT TO FINAL GRADE.
5. PAVER CONCRETE BLOCK UNDER RELIEF PORT, SET AT FINAL GRADE.
6. TEST COCKS, (4) SHALL BE FITTED WITH BRASS PLUGS AND INSTALLED WITH TEFLON TAPE.
7. SHUTOFF VALVES TO BE RESILENT BALL TYPE WITH REMOVABLE HANDLES.
8. COMPRESSION TYPE FITTINGS ARE NOT ALLOWED.
9. INSTALL THE BACKFLOW PREVENTION ASSEMBLY IMMEDIATELY DOWNSTREAM OF THE CITY WATER METER.
10. A COPPER/BRASS UNION MUST BE INSTALLED IN THE MIDDLE OF THE DOWNSTREAM RISER.
11. CONTACT CITY OF PHOENIX DEVELOPMENT SERVICES DEPARTMENT, CROSS-CONNECTION CONTROL FOR A LIST OF APPROVED BACKFLOW PREVENTION ASSEMBLIES.
12. COPPER FITTINGS SHALL BE CONNECTED WITH LEAD-FREE SOLDER JOINT.
13. TRANSITION FROM "K" COPPER TO OTHER APPROVED PIPING MATERIAL SHALL BE IN THE HORIZONTAL PIPING A MIMIMUM OF 12" BELOW GRADE.

DETAIL NO.			APPROVED	DETAIL NO.
P1354	**City of Phoenix STANDARD DETAIL**	REDUCED PRESSURE PRINCIPLE BACKFLOW PREVENTION ASSEMBLY INSTALLATION – 2 1/2" AND UNDER	CITY ENGINEER — 6-27-01 DATE	P1354

REVISED 5/05/04



Inlet As Close To Service Connection As Possible (Immediately After Water Meter). Copper On Inlet Side.

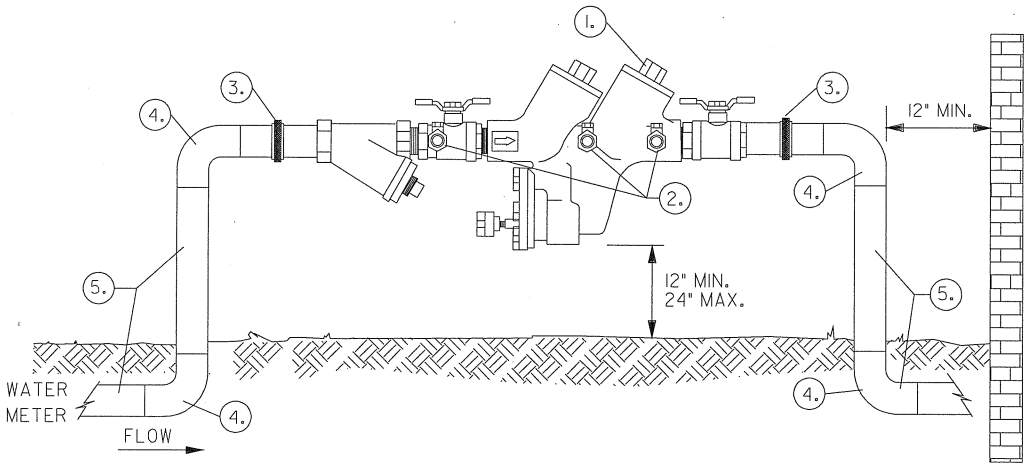
LIST OF MATERIALS

① Approved reduced pressure principle backflow prevention assembly, ball valves included.
② Pipe spool, type "L" hard copper, 3/4" thru 2 1/2".
③ 90° ell, copper, 3/4" thru 2 1/2".
④ Pipe union, brass or copper.
⑤ Test cocks with brass plugs or adaptors with caps installed. (4 Required)

GENERAL NOTES

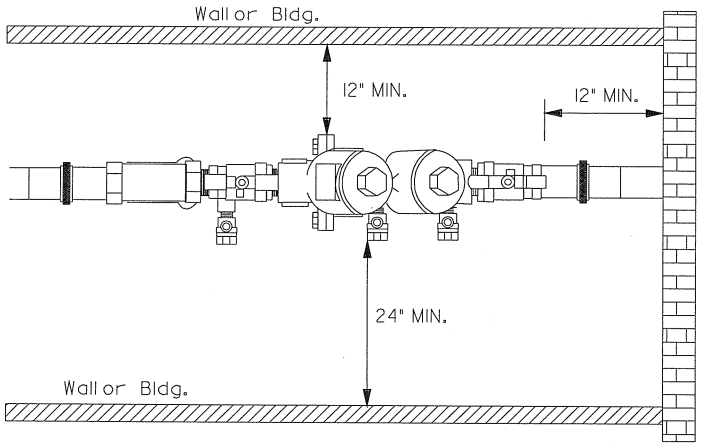
1. Backflow assemblies must be tested by a certified tester that is recognized by the City of Scottsdale.
2. Copper fittings shall be connected with lead free solder joints.
3. Finished grade underneath the backflow preventer shall be at 95% compaction.
4. All nipples to be copper or brass.
5. Piping under the City right of way must be type "K" copper.
6. Call for underground inspection before backfilling trench.
7. Approvals for backflow assemblies must have Seal Approval from the American Society of Sanitation Engineers. Backflow assemblies installed on fire supression systems must also have approval from Underwriters Laboratories and/or Factory Mutual Research Corporation.

DETAIL NO. 2354	City of Scottsdale Standard Details	APPROVED BY: Scottsdale Standards & Specifications Committee	REDUCED PRESSURE PRINCIPLE BACKFLOW PREVENTION ASSEMBLY FOR ASSEMBLIES 3/4 INCH THRU 2 1/2 INCHES	DETAIL NO. 2354



MATERIALS LIST

1. USC FCCCHR Approved Reduced Pressure Backflow Assembly.
2. Test Cocks.
3. Brass 3 pc. Union (One required)
4. Copper x Copper 90 Ells.
5. Type "K" Copper Tubing.



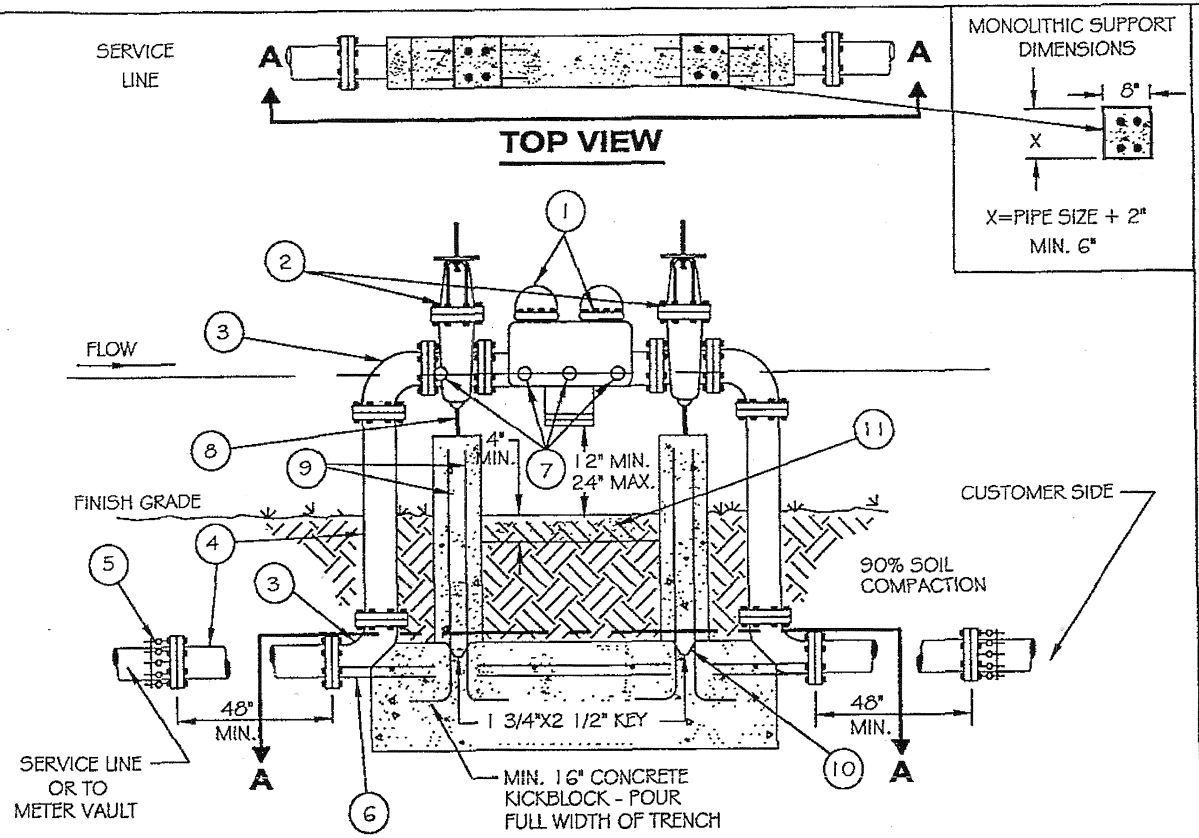
NOTES:

1. Contact City of Tempe Environmental Services Section at 350-8200 for Latest List of USC FCCCHR Approved Assemblies, (Assembly Must be Tested Before Certificated of Occupancy will be Issued.)
2. Copper Fittings shall be Connected with Lead Free Solder.
3. Details for Screening shall be Submitted to City of Tempe Engineering and Development Services Departments for Approval.
4. Screening Required: ¾Thru 2 inch Assemblies shall be Screened by the Use of Plant Materials.
5. Clearance: Minimum 12 Inches Away from any Wall or Structure. Minimum 24 Inches Away from Any Wall or Structure if Test Cocks Face Wall or Structure. Minimum 12 Inches Above Finish Grade, Maximum 24 Inches.

APPROVED: ORIGINAL SIGNATURE ON FILE AT THE CITY OF TEMPE

CITY ENGINEER DATE

CITY OF TEMPE PUBLIC WORKS DEPARTMENT	REDUCED PRESSURE BACKFLOW ASSEMBLY ¾ - 2 INCH	DETAIL T-213-A REVISED 1998



LIST OF MATERIALS

1. APPROVED REDUCED PRESSURE PRINCIPLE BACKFLOW PREVENTION ASSEMBLY.
2. O.S.&Y. GATE VALVE, N.R.S. GATE VALVE, IF PREFERRED.
3. 90° ELL. (FLANGED D.I.P.)
4. PIPE SPOOL (FLANGED D.I.P.)
5. FLANGED ADAPTER (WHEN REQUIRED).
6. 3/4" ZINC COATED THREADED ROD, BOLTED TO FLANGES AS SHOWN, BOTH SIDES TYPICAL EQUAL TENSION
7. TEST COCKS (4 REQUIRED WITH BRASS PLUGS USING ONLY TEFLON TAPE.)
8. ADJUSTABLE PIPE SUPPORT MUST BE PERMANENTLY ATTACHED TO BASE, 6" MAXIMUM HEIGHT.
9. #6 REINFORCING STEEL, DEFORMED BAR, 4" APART, EVENLY SPACED.
10. CONSTRUCTION JOINT KEY TO BE 1 3/4" X 2 1/2".
11. 4" CONCRETE SPLASH PAD.

NOTES:

1. LIST OF LATEST APPROVED ASSEMBLIES ON FILE AT ENGINEERING. COPIES AVAILABLE.
2. ASSEMBLY SHALL BE AS APPROVED BY UNIVERSITY OF SOUTHERN CALIFORNIA (USC) FOUNDATION FOR CROSS-CONNECTION CONTROL AND HYDRAULIC RESEARCH.
3. ABOVE GROUND PORTION OF ASSEMBLY TO BE PAINTED LIGHT TAN OR EQUIVALENT BACKGROUND COLOR.

SCREENING METHOD

1. SCREEN WALLS, PLANT MATERIAL, BERMING AND/OR BUILDING ORIENTATION SHALL BE SUBMITTED TO DEVELOPMENT SERVICES FOR REVIEW AND APPROVAL PRIOR TO START OF CONSTRUCTION.

C-315 **REPLACES** **93**	CITY OF CHANDLER STANDARD DETAIL	**REDUCED PRESSURE PRINCIPLE ASSEMBLY** **3", 4", 6", 8", 10"**	APPROVED: Roger D. Patterson CITY ENGINEER DATE: 11-19-99	DETAIL NO. **C-315** NTS

LIST OF MATERIALS

1. APPROVED REDUCED PRESSURE PRINCIPLE BACKFLOW PREVENTION ASSEMBLY.

2. COAT WITH COAL TAR EPOXY (16 MILS.).

3. O.S. & Y. GATE VALVE (RESILIENT SEAT).

4. 90 ELBOW (FLANGED D.I.P. 3" THRU 10") OR (TYPE "K" COPPER 3/4" THRU 2 1/2").

5. PIPE SPOOL (FLANGED D.I.P. 3" THRU 10") OR (TYPE "K" COPPER 3/4" THRU 2 1/2").

6. FLANGED ADAPTER (WHEN REQUIRED).

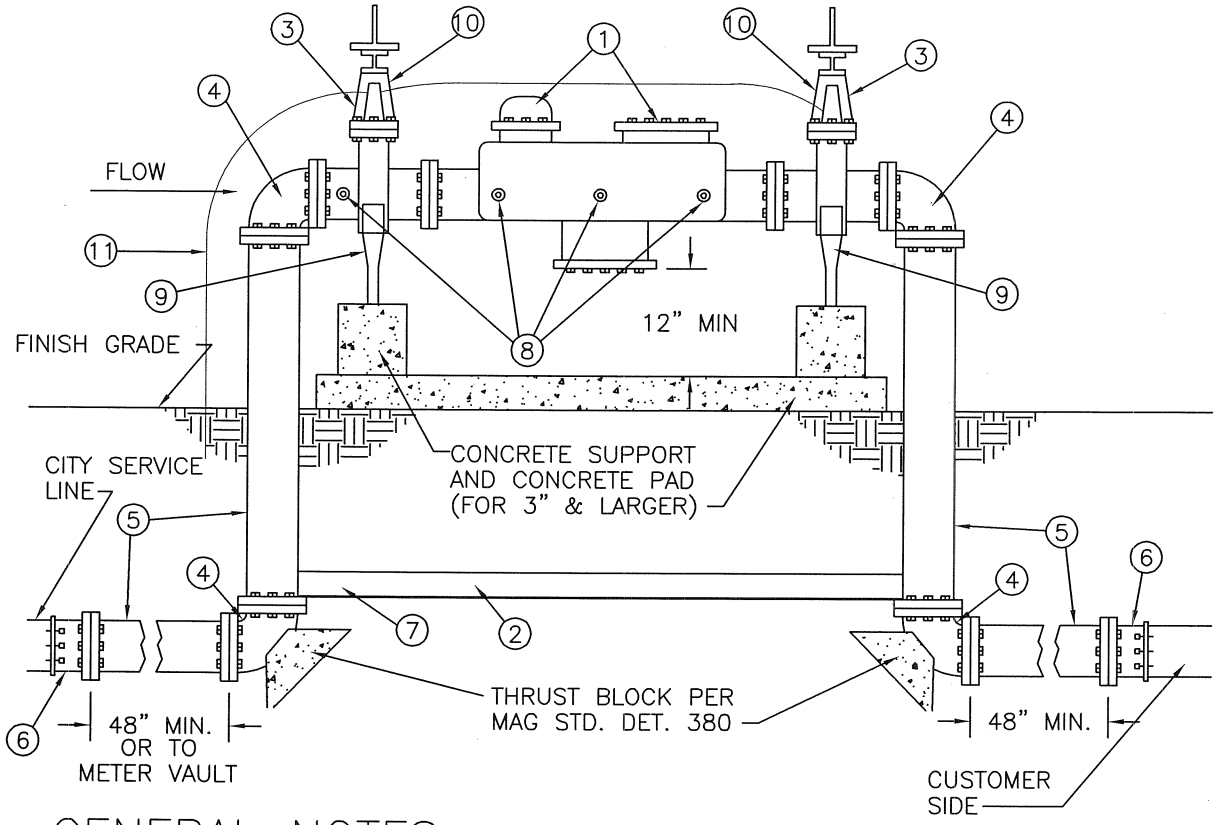
7. 3" X 3" X 1/4" STEEL ANGLE (FOR 4" & LARGER ASSEMBLY ONLY) BOLT TO FLANGE EACH END WITH ONE BOLT.

8. TEST COCK (4 REQUIRED)(BRASS PLUGS REQUIRED).

9. ADJUSTABLE PIPE SUPPORT (FOR 3" & LARGER ASSEMBLY ONLY).

10. TAMPER SWITCH (ON FIRE LINE ONLY).

11. ELECTRICAL CONDUIT FOR TAMPER SWITCH (ON FIRE LINE ONLY).



GENERAL NOTES

1. CONTACT THE TOWN OF GILBERT BACKFLOW PREVENTION DEPT FOR THE LATEST LIST OF APPROVED BACKFLOW PREVENTION ASSEMBLIES.

2. ASSEMBLY SHALL BE APPROVED BY U.S.C. FOUNDATION FOR CROSS CONNECTION AND HYDRAULIC RESEARCH.

3. FOUR (4) TEST COCKS SHALL BE INSTALLED AS PER U.S.C.. TEST COCKS SHALL BE FITTED WITH BRASS PLUGS.

4. ABOVE GROUND INSTALLATIONS SHALL BE PROTECTED BY GUARD POSTS. SEE DETAIL 83-B

5. COPPER FITTINGS SHALL BE CONNECTED WITH LEAD-FREE SOLDER JOINTS.

6. CONCRETE SUPPORT PAD SHALL BE MIN. 12" WIDE BY LENGTH OF PRESSURE ASSEMBLY.

7. FINISHED GRADE UNDERNEATH BACKFLOW PREVENTION ASSEMBLIES SHALL BE 95% COMPACTION.

8. ASSEMBLY TO BE PAINTED TAN OR TO MATCH BUILDING.

DETAIL NO. 83	TOWN OF GILBERT STANDARD DETAIL	REDUCED PRESSURE PRINCIPLE ASSEMBLY	REVISED 8/25/98	DETAIL NO. 83

STANDARD DETAIL G-671

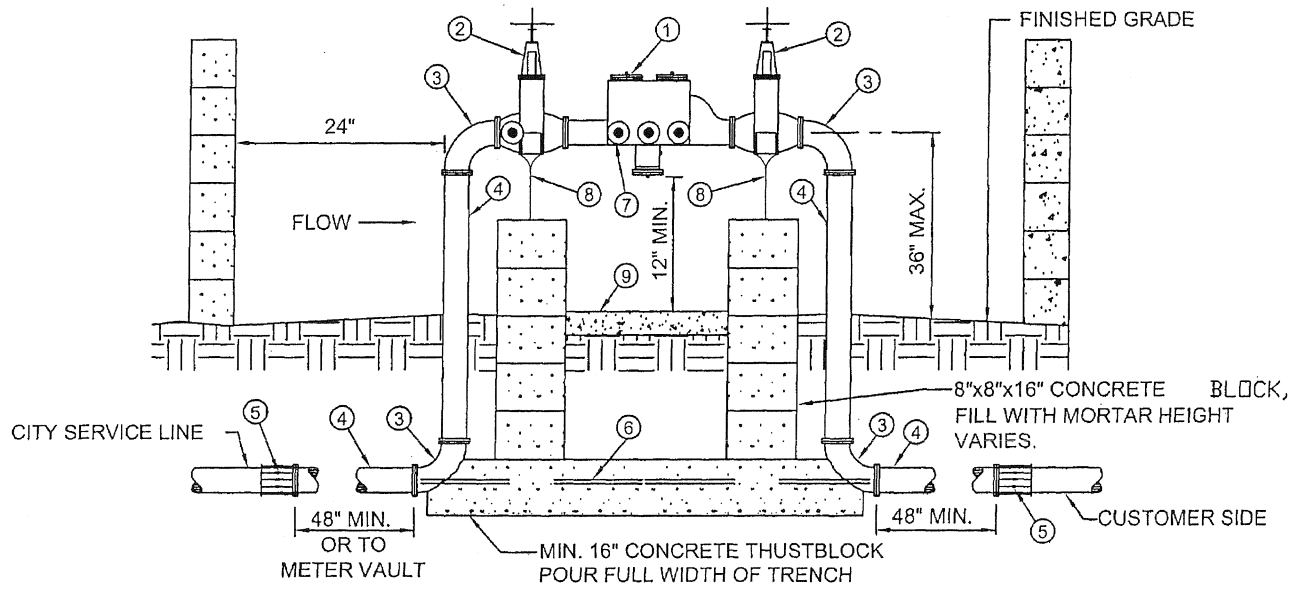
CITY OF GLENDALE
ENGINEERING

GLENDALE

REDUCED PRESSURE PRINCIPLE BACKFLOW PREVENTION ASSEMBLY FOR ASSEMBLIES 3 INCHES AND LARGER

GENERAL NOTES

1. CONTACT CITY OF GLENDALE, FOR LATEST LIST OF APPROVED BACKFLOW PREVENTION ASSEMBLIES OR CERTIFIED TESTERS.
2. BACKFLOW PREVENTERS MUST BE TESTED BY A CERTIFIED TESTER BEFORE FINAL APPROVAL IS ISSUED.
3. BACKFLOW PREVENTERS SHALL BE PAINTED LIGHT TAN OR A COLOR TO MATCH THE BUILDING. DO NOT PAINT THE NAME PLATE OR ANY BRASS PARTS ON THE ASSEMBLY.
4. FOR BACKFLOW PREVENTERS REQUIRING GUARD POSTS SEE DETAIL G-672. BACKFLOW PREVENTERS FOR 3-INCH AND LARGER WILL BE ENCLOSED BY A SCREENING WALL AND SHALL MAINTAIN A 24 INCH CLEARANCE AROUND THE ASSEMBLY.
5. FINISHED GRADE UNDERNEATH THE BACKFLOW PREVENTER SHALL BE AT 95% COMPACTION.
6. BACKFLOW PREVENTERS ON FIRE LINES MAY REQUIRE TAMPER SWITCHES ON THE SHUT OFF VALVES.



LIST OF MATERIALS

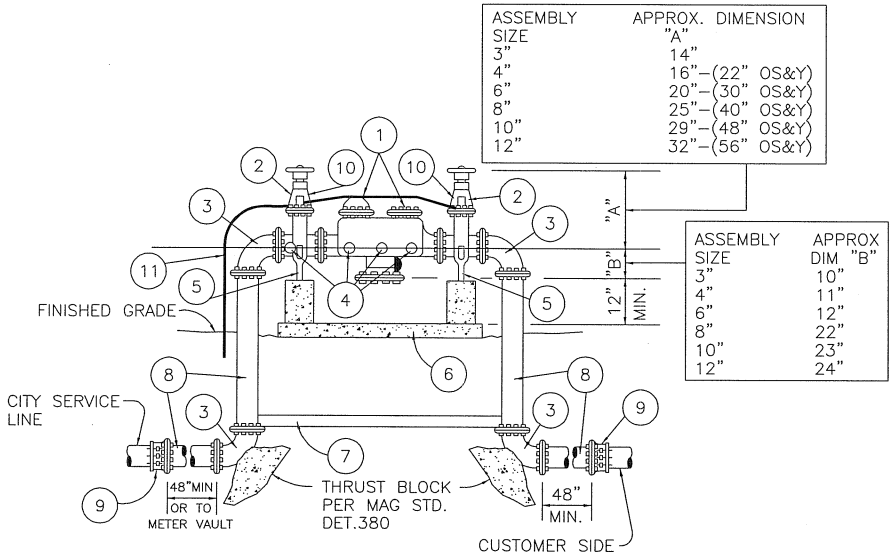
1. APPROVED DOUBLE CHECK VALVE BACKFLOW PREVENTION ASSEMBLY.
2. RESILIENT SEATED GATE VALVE. O.S. & Y. (FIRE LINE CONNECTION) N.R.S. (NON FIRE LINE)
3. 90° ELL. FLANGED D.I.P. 3" THRU 10".
4. PIPE SPOOL FLANGED D.I.P. 3" THRU 10".
5. FLANGED ADAPTER (WHEN REQUIRED).
6. 3/4" ZINC COATED THREADED ROD, BOLT TO FLANGES AS SHOWN, TYPICAL BOTH SIDES.
7. TEST COCKS WITH BRASS PLUGS INSTALLED. (4 REQUIRED).
8. ADJUSTABLE METAL PIPE SUPPORTS. (ASSEMBLIES 4" AND LARGER).
9. CONCRETE SPLASH PAD 4" THICK BY MINIMUM 18" WIDE REQUIRED BENEATH 4" AND LARGER ASSEMBLIES.

APPROVED BY: Larry J Brosius
CITY ENGINEER

6/28/02
DATE

REVISED : JUNE 2002

PREVIOUS :



REDUCED PRESSURE PRINCIPLE DEVICE

GENERAL NOTES

1. ASSEMBLY SHALL BE APPROVED BY U.S.C. FOUNDATION FOR CROSS CONNECTION AND HYDRAULIC RESEARCH.
2. CONTACT CITY OF GOODYEAR WATER OPERATIONS DIVISION FOR A LIST OF APPROVED BACKFLOW PREVENTION ASSEMBLIES.
3. FOUR (4) TEST COCKS TO BE INSTALLED PER U.S.C.
4. COPPER FITTINGS SHALL BE CONNECTED WITH LEAD–FREE SOLDER JOINTS.
5. FINISHED GRADE BELOW BACKFLOW PREVENTER SHALL BE 95% COMPACTION.
6. ASSEMBLY MAY BE PAINTED TO BLEND WITH LANDSCAPE SURFACE TREATMENT OR ON–SITE STRUCTURES.
7. THE ASSEMBLY MAY ALSO BE SCREENED WITH SHRUBBERY OR BE ENCLOSED WITHIN A WALL TYPE STRUCTURE. ADEQUATE DRAINAGE FOR SURFACE WATER IS REQUIRED.
8. ANY SCREENING/ENCLOSURE MUST PROVIDE A MINIMUM 18" ACCESS OPENING (UNSECURED GATES ARE ACCEPTABLE) AND SIDE WALLS OR SHRUBBERY MUST BE A MINIMUM OF 24" FROM THE OUTSIDE FACE OF ANY PORTION OF THE BACKFLOW PREVENTION DEVICE.
9. ASSEMBLY MAY BE PROTECTED BY GUARD POSTS (MODIFY P–1359, HYDRANT GUARDS, PHOENIX SUPPLEMENT TO MAG).

LIST OF MATERIALS

(1) APPROVED REDUCED PRESSURE PRINCIPLE BACKFLOW PREVENTION DEVICE.

(2) GATE VALVE, RESILIENT SEATED (NON–RISING STEM)(O.S.&Y. REQUIRED ON FIRELINES).

(3) 90° ELL (FLANGED D.I.P. 3" THROUGH 12").

(4) TEST COCK, RESILIENT SEATED (4 REQUIRED) FIT WITH BRASS PLUG.

(5) ADJUSTABLE PIPE SUPPORT PERMANENTLY ATTACHED TO BASE (4" AND LARGER ASSEMBLY ONLY).

(6) CONCRETE SUPPORT PAD 4" THICK BY 18" WIDE MINIMUM BENEATH 4" AND LARGER ASSEMBLIES. (CLASS "A" CONCRETE)

(7) 3"X3"X1/4" STEEL ANGLE. BOLT TO FLANGE, EACH END WITH ONE BOLT. COAT WITH COAL TAR EPOXY (16 MILS) REQUIRED ON 4" AND LARGER ASSEMBLIES.

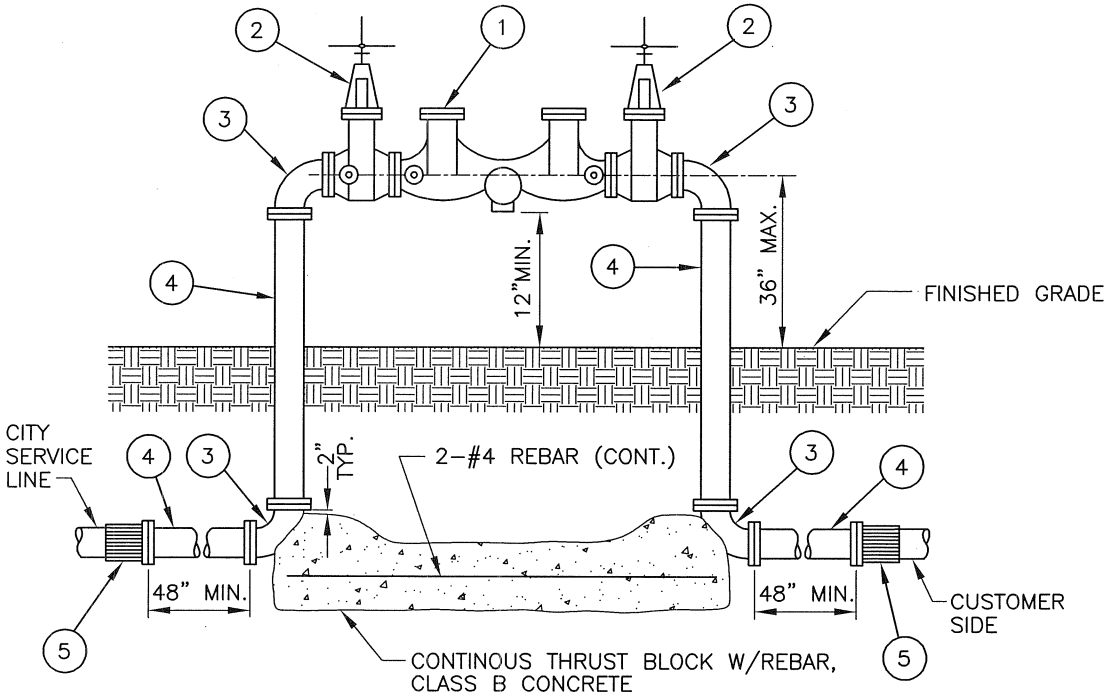
(8) PIPE SPOOL (FLANGED D.I.P. 3" THRU 12").

(9) FLANGED ADAPTER (WHEN REQUIRED).

(10) TAMPER SWITCH (ON FIRELINE ONLY, OPTIONAL).

(11) ELECTRICAL CONDUIT FOR TAMPER SWITCH.

DETAIL NO. G-3351	CITY OF GOODYEAR STANDARD DETAIL	APPROVED BY: Goodyear Standards and Policies Committee 7/97	REDUCED PRESSURE PRINCIPLE BACKFLOW PREVENTION ASSEMBLY INSTALLATION - 3" AND OVER	DETAIL NO. G-3351



REDUCED PRESSURE PRINCIPLE BACKFLOW PREVENTION ASSEMBLY

LIST OF MATERIALS

1. APPROVED REDUCED PRESSURE PRINCIPLE BACKFLOW PREVENTION ASSEMBLY.
2. RESILIENT SEATED GATE VALVE. O.S. & Y. (FIRE LINE CONNECTION) N.R.S. (NON FIRE LINE)
3. 90° ELL. FLANGED D.I.P. 2 1/2" THRU 10"
4. PIPE SPOOL. FLANGED D.I.P. 2 1/2" THRU 10"
5. FLANGED ADAPTER (WHEN REQUIRED)

GENERAL NOTES

1. CONTACT CITY OF MESA, WATER QUALITY SERVICES FOR LATEST LIST OF APPROVED BACKFLOW PREVENTERS OR CERTIFIED TESTERS.
2. THE REQUIRED BACKFLOW PREVENTION ASSEMBLY SHALL BE A MANUFACTURER AND MODEL NUMBER DESIGNATED IN THE CURRENT CITY OF MESA LIST OF APPROVED BACKFLOW PREVENTION ASSEMBLIES.
3. THE BACKFLOW PREVENTION ASSEMBLY SHALL BE TESTED AND APPROVED BY A CERTIFIED TECHNICIAN DESIGNATED IN THE CURRENT CITY OF MESA LIST OF APPROVED INSPECTORS PRIOR TO THE REQUEST FOR FINAL INSPECTION.
4. BACKFLOW PREVENTERS SHALL BE PAINTED LIGHT TAN OR A COLOR TO MATCH THE BUILDING. DO NOT PAINT THE NAME PLATE OR ANY BRASS PARTS OF THE ASSEMBLY.
5. INSTALL BRASS PIPE PLUG IN EACH TESTCOCK ON THE ASSEMBLY.
6. ALL BACKFLOW PREVENTERS SHALL BE PROTECTED BY GUARD POSTS. SEE C.O.M. DETAIL M-32.
7. FINISHED GRADE UNDER THE BACKFLOW PREVENTER SHALL BE COMPACTED TO 95% OF MAXIMUM DENSITY.
8. BACKFLOW PREVENTERS ON FIRE LINES MAY REQUIRE TAMPER SWITCHES ON THE SHUT OFF VALVES. CONTACT CITY OF MESA FIRE PREVENTION FOR SPECIFIC REQUIREMENTS.
9. PROVIDE 24-INCH MINIMUM CLEARANCE BETWEEN BACKFLOW PREVENTION ASSEMBLY AND PERMANENT STRUCTURES.

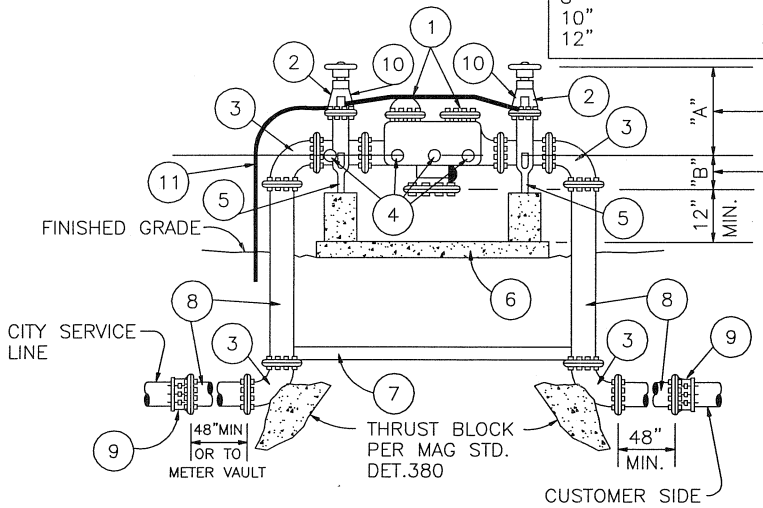
REDUCED PRESSURE PRINCIPLE BACKFLOW PREVENTION ASSEMBLY; FOR ASSEMBLIES 2 1/2 INCHES & LARGER

DETAIL NO. M-31.1

REV.02/01/02

ASSEMBLY SIZE	APPROX. DIMENSION "A"
3"	14"
4"	16"–(22" OS&Y)
6"	20"–(30" OS&Y)
8"	25"–(40" OS&Y)
10"	29"–(48" OS&Y)
12"	32"–(56" OS&Y)

ASSEMBLY SIZE	APPROX DIM "B"
3"	10"
4"	11"
6"	12"
8"	22"
10"	23"
12"	24"



REDUCED PRESSURE PRINCIPLE DEVICE

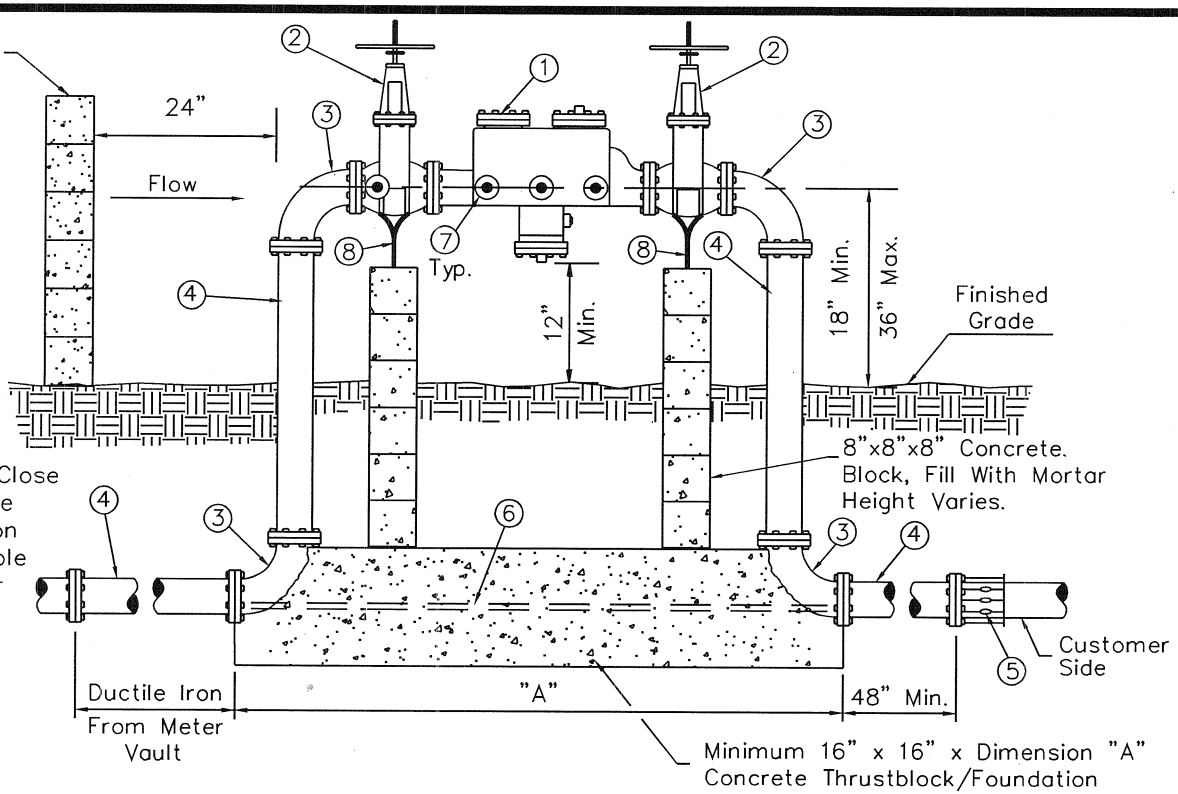
GENERAL NOTES

1. ASSEMBLY SHALL BE APPROVED BY U.S.C. FOUNDATION FOR CROSS CONNECTION AND HYDRAULIC RESEARCH.
2. CONTACT CITY OF PHOENIX DEVELOPMENT SERVICES DEPARTMENT, CROSS–CONNECTION CONTROL FOR A LIST OF APPROVED BACKFLOW PREVENTION ASSEMBLIES.
3. FOUR (4) TEST COCKS TO BE INSTALLED PER U.S.C.
4. COPPER FITTINGS SHALL BE CONNECTED WITH LEAD–FREE SOLDER JOINTS.
5. FINISHED GRADE BELOW BACKFLOW PREVENTER SHALL BE 95% COMPACTION.
6. ASSEMBLY MAY BE PAINTED TO BLEND WITH LANDSCAPE SURFACE TREATMENT OR ON–SITE STRUCTURES.
7. THE ASSEMBLY MAY ALSO BE SCREENED WITH SHRUBBERY OR BE ENCLOSED WITHIN A WALL TYPE STRUCTURE. ADEQUATE DRAINAGE FOR SURFACE WATER IS REQUIRED.
8. ANY SCREENING/ENCLOSURE MUST PROVIDE A MINIMUM 18" ACCESS OPENING (UNSECURED GATES ARE ACCEPTABLE) AND SIDE WALLS OR SHRUBBERY MUST BE A MINIMUM OF 24" FROM THE OUTSIDE FACE OF ANY PORTION OF THE BACKFLOW PREVENTION DEVICE.
9. ASSEMBLY MAY BE PROTECTED BY GUARD POSTS (MODIFY P–1359, HYDRANT GUARDS, PHOENIX SUPPLEMENT TO MAG).

LIST OF MATERIALS

1. APPROVED REDUCED PRESSURE PRINCIPLE BACKFLOW PREVENTION DEVICE.
2. GATE VALVE, RESILIENT SEATED (NON–RISING STEM)(O.S.&Y. REQUIRED ON FIRELINES).
3. 90° ELL (FLANGED D.I.P. 3" THROUGH 12").
4. TEST COCK, RESILIENT SEATED (4 REQUIRED) FIT WITH BRASS PLUG.
5. ADJUSTABLE PIPE SUPPORT PERMANENTLY ATTACHED TO BASE (4" AND LARGER ASSEMBLY ONLY).
6. CONCRETE SUPPORT PAD 4" THICK BY 18" WIDE MINIMUM BENEATH 4" AND LARGER ASSEMBLIES. (CLASS "A" CONCRETE)
7. 3"X3"X1/4" STEEL ANGLE. BOLT TO FLANGE, EACH END WITH ONE BOLT. COAT WITH COAL TAR EPOXY (16 MILS) REQUIRED ON 4" AND LARGER ASSEMBLIES.
8. PIPE SPOOL (FLANGED D.I.P. 3" THRU 12").
9. FLANGED ADAPTER (WHEN REQUIRED).
10. TAMPER SWITCH (ON FIRELINE ONLY, OPTIONAL).
11. ELECTRICAL CONDUIT FOR TAMPER SWITCH.

DETAIL NO.				DETAIL NO.
P1351	City of Phoenix STANDARD DETAIL	REDUCED PRESSURE PRINCIPLE BACKFLOW PREVENTION ASSEMBLY INSTALLATION – 3" AND OVER	APPROVED _____ CITY ENGINEER 6-27-01 DATE	P1351



REVISED 5/05/04

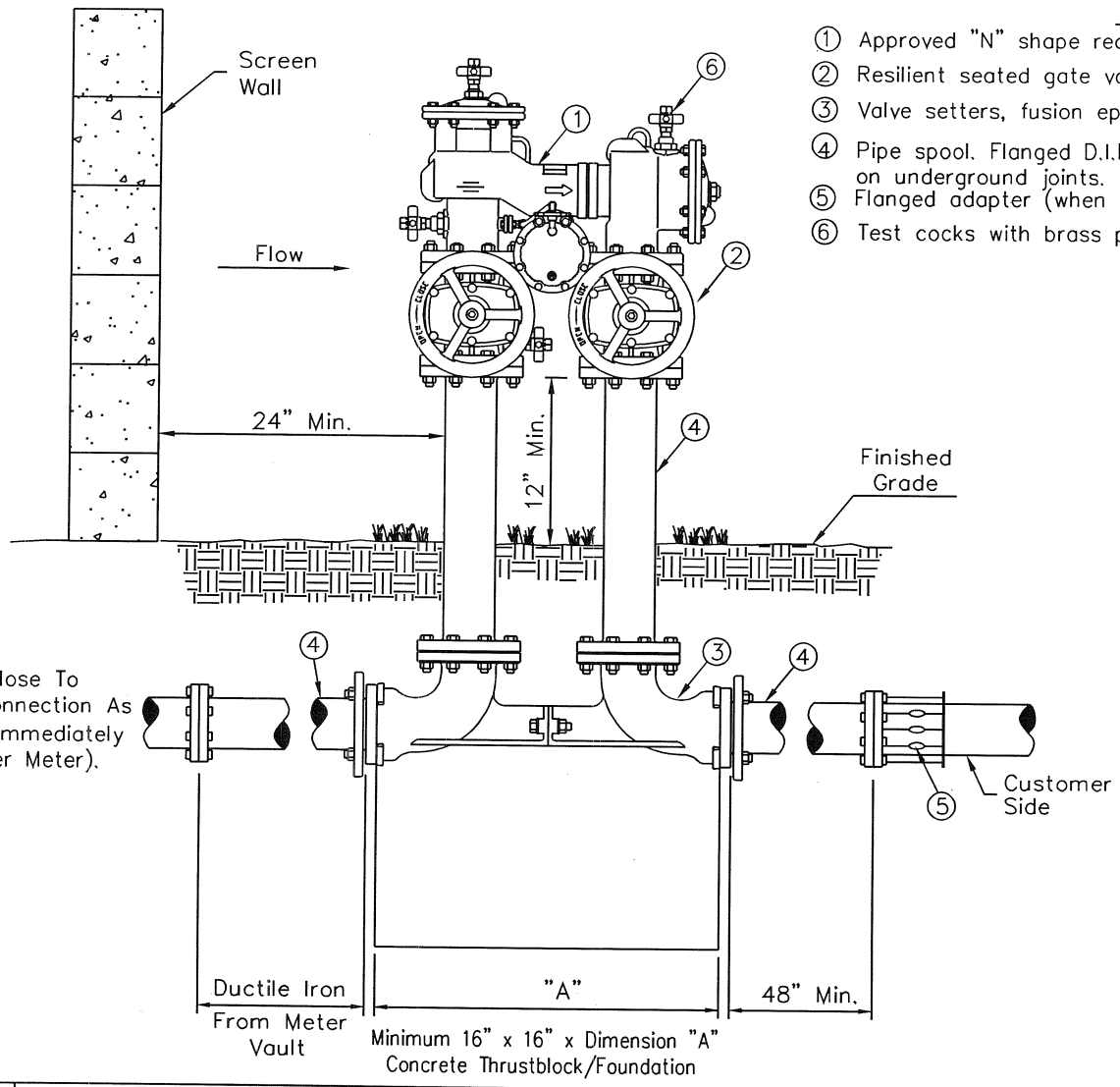
GENERAL NOTES

1. Backflow assemblies must be tested by a certified tester that is recognized by the City of Scottsdale.
2. Backflow preventers shall be painted light tan or a color to match the building. Do not paint the name plate or any brass parts on the assembly.
3. For backflow preventers requiring guard posts see Detail 2356. Backflow preventers enclosed by screening shall maintain a 24 inch clearance around the assembly.
4. Finished grade underneath the backflow preventer shall be at 95% compaction.
5. Backflow preventers on fire lines may require tamper switches on the shut off valves. Contact City Of Scottsdale Plan Review, Fire Dept.
6. Call for underground inspection before backfilling trench.
7. Approvals for backflow assemblies must have Seal Approval from the American Society of Sanitation Engineers. Backflow assemblies installed on fire supression systems must also have approval from Underwriters Laboratories and/or Factory Mutual Research Corporation.

LIST OF MATERIALS

① Approved reduced pressure principle backflow prevention assembly.
② Resilient seated gate valve. O.S. & Y. (fire line connection). N.R.S. (non fire line)
③ 90° ell. Flanged D.I.P. 3" thru 10", Mega Lug or approved equal may be used on underground joints.
④ Pipe spool. Flanged D.I.P. 3" thru 10", Mega Lug or approved equal may be used on underground joints.
⑤ Flanged adapter (when required)
⑥ 3/4" zinc coated threaded rod, (5/8" rod on 3" to 4" sizes), bolt to flanges as shown, typical both sides.
⑦ Test cocks with brass plugs or adaptors with caps installed. (4 required)
⑧ Adjustable metal pipe supports and concrete block supports with 1" adjusting rod and nut on assemblies 4" and larger. Install above grade.

DETAIL NO. 2353	City of Scottsdale Standard Details	APPROVED BY: Scottsdale Standards & Specifications Committee	REDUCED PRESSURE PRINCIPLE BACKFLOW PREVENTION ASSEMBLY FOR ASSEMBLIES 3 INCHES THRU 10 INCHES	DETAIL NO. 2353



LIST OF MATERIALS

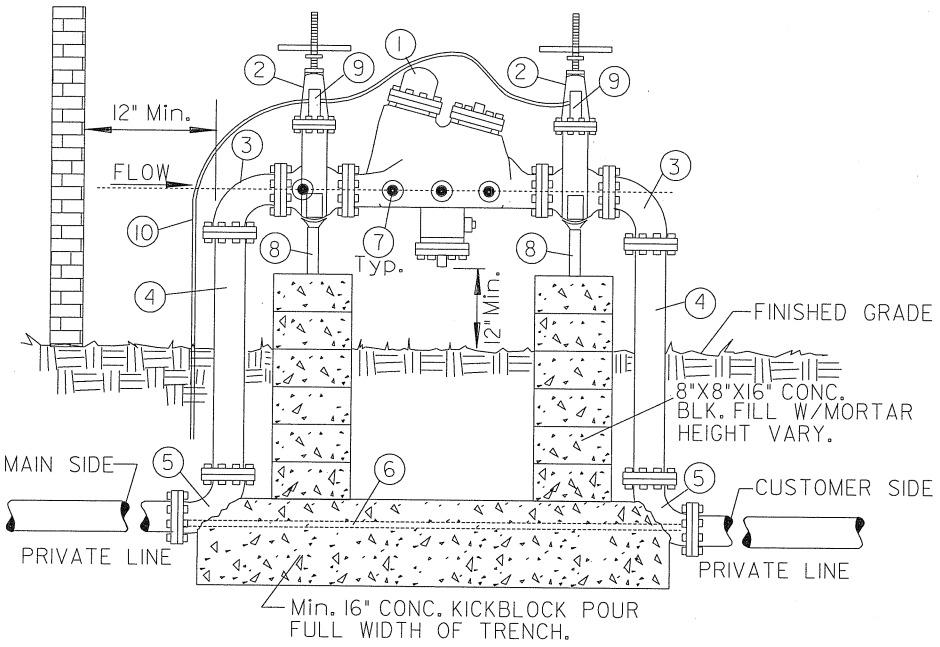
1. Approved "N" shape reduced pressure principle backflow prevention assembly.
2. Resilient seated gate valve. O.S. & Y. (fire line connection) N.R.S. (non fire line)
3. Valve setters, fusion epoxy coated ductile iron, plated nuts and bolts. (2 required)
4. Pipe spool. Flanged D.I.P. 3" thru 10", Mega Lug or approved equal may be used on underground joints.
5. Flanged adapter (when required)
6. Test cocks with brass plugs or adaptors with caps installed. (4 required)

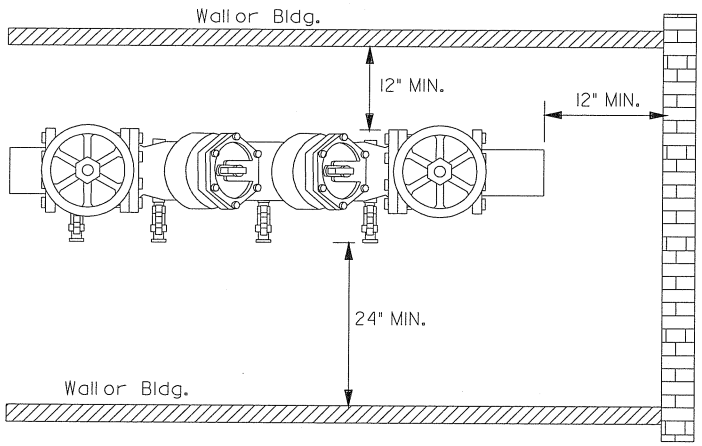
GENERAL NOTES

1. Backflow backflow assemblies must be tested by a certified tester that is recognized by the City of Scottsdale.
2. Backflow preventers shall be painted light tan or a color to match the building. Do not paint the name plate or any brass parts on the assembly.
3. For backflow preventers requiring guard posts see Detail 2356. Backflow preventers enclosed by screening shall maintain a 24 inch clearance around the assembly.
4. Finished grade underneath the backflow preventer shall be at 95% compaction.
5. Backflow preventers on fire lines may require tamper switches on the shut off valves. Contact City Of Scottsdale Plan Review, Fire Dept.
6. Call for underground inspection before backfilling trench.
7. Approvals for backflow assemblies must have Seal Approval from the American Society of Sanitation Engineers. Backflow assemblies installed on fire supression systems must also have approval from Underwriters Laboratories and/or Factory Mutual Research Corporation.

REVISED 5/05/04

DETAIL NO. 2360	City of Scottsdale Standard Details	APPROVED BY: Scottsdale Standards & Specifications Committee	"N" SHAPED REDUCED PRESSURE PRINCIPLE BACKFLOW PREVENTION ASSEMBLY FOR ASSEMBLIES 3 INCHES THRU 10 INCHES	DETAIL NO. 2360





LIST OF MATERIALS

1. USC FCCCHR APPROVED REDUCED PRESSURE BACKFLOW ASSEMBLY.
2. RESILIENT SEATED VALVE N.R.S. (NON-FIRE)OR OS&Y (FIRELINE).
3. 90 ELL.(FLANGED D.I.P. 3" THRU 10")
4. PIPE SPOOL (FLANGED D.I.P. 3" THRU 10")
5. 90 ELL.(FLANGED BY MJ. D.I.P. 3" THRU 10")
6. ¾" ZINC COATED THREADED ROD, BOLT TO FLANGES AS SHOWN, BOTH SIDES TYPICAL.
7. TEST COCKS (FOUR REQUIRED).
8. ADJUSTABLE PIPE SUPPORTS (4" AND LARGER)
9. TAMPER SWITCH (FIRELINE ONLY).
10. ELECTRICAL CONDUIT FOR TAMPER SWITCH (FIRELINE ONLY).

NOTES:

1. FIRE PROTECTION SYSTEMS MAY REQUIRE REDUCED PRESSURE DETECTOR VALVE ASSEMBLY (RPDVA) AS A BACKFLOW ASSEMBLY.
2. CONTACT CITY OF TEMPE ENVIRONMENTAL SERVICES SECTION AT 350-8200 FOR LATEST LIST OF USC FCCCHR APPROVED ASSEMBLIES, (ASSEMBLY MUST BE TESTED BEFORE C OF O WILL BE ISSUED)
3. COPPER FITTINGS SHALL BE CONNECTED WITH LEAD - FREE SOLDER.
4. DETAILS FOR SCREENING / GUARD POSTS SHALL BE SUBMITTED TO CITY OF TEMPE ENGINEERING AND DEVELOPMENT SERVICES DEPARTMENTS FOR APPROVAL.
5. SCREENING REQUIRED; 3" OR LARGER DIAMETER REQUIRES MASONRY SCREEN WALLS WITH MATERIALS, FINISH, AND COLOR TO MATCH BUILDING.
6. CITY CONTROL VALVE TO BE REQUIRED AT MAIN SIDE
7. THE CITY WILL NOT PARTICIPATE IN THE COST OF CONSTRUCTION, REPAIR OR UTILITY RELOCATION.
8. CLEARANCE: MINIMUM 12 INCHES AWAY FROM ANY WALL OR STRUCTURE. MINIMUM 24 INCHES AWAY FROM ANY WALL OR STRUCTURE IF TEST COCKS OR MAINTENANCE COVERS FACE WALLS. MINIMUM 12 INCHES ABOVE FINISH GRADE, MAXIMUM 24 INCHES.

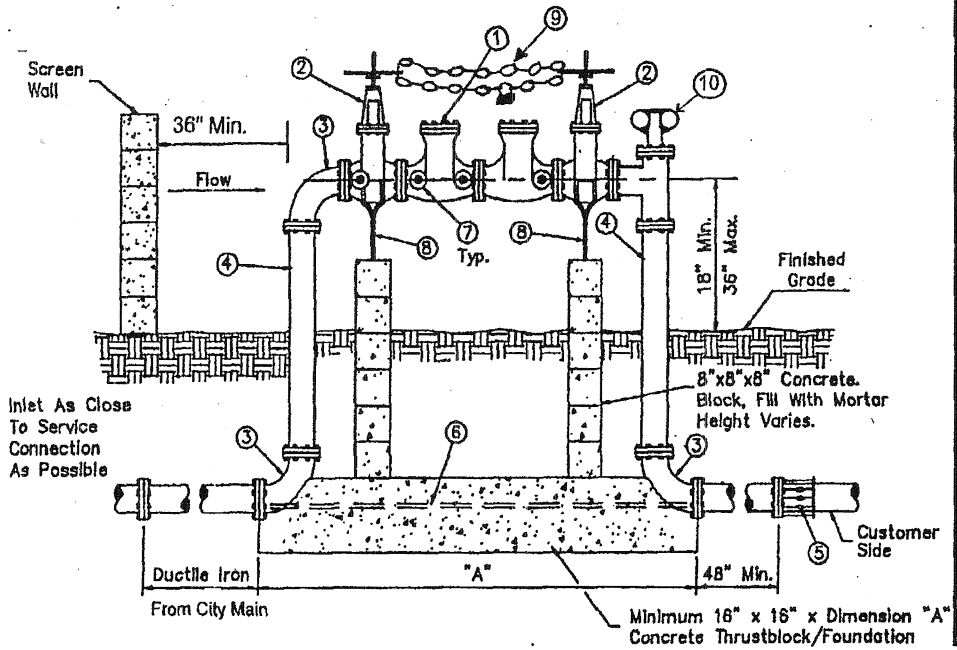
ORIGINAL SIGNATURE ON FILE AT THE CITY OF TEMPE

APPROVED: _____ CITY ENGINEER _____ DATE

CITY OF TEMPE
PUBLIC WORKS DEPARTMENT

REDUCED PRESSURE PRINCIPLE BACKFLOW PREVENTION ASSEMBLY

DETAIL T-213
REVISED 1998



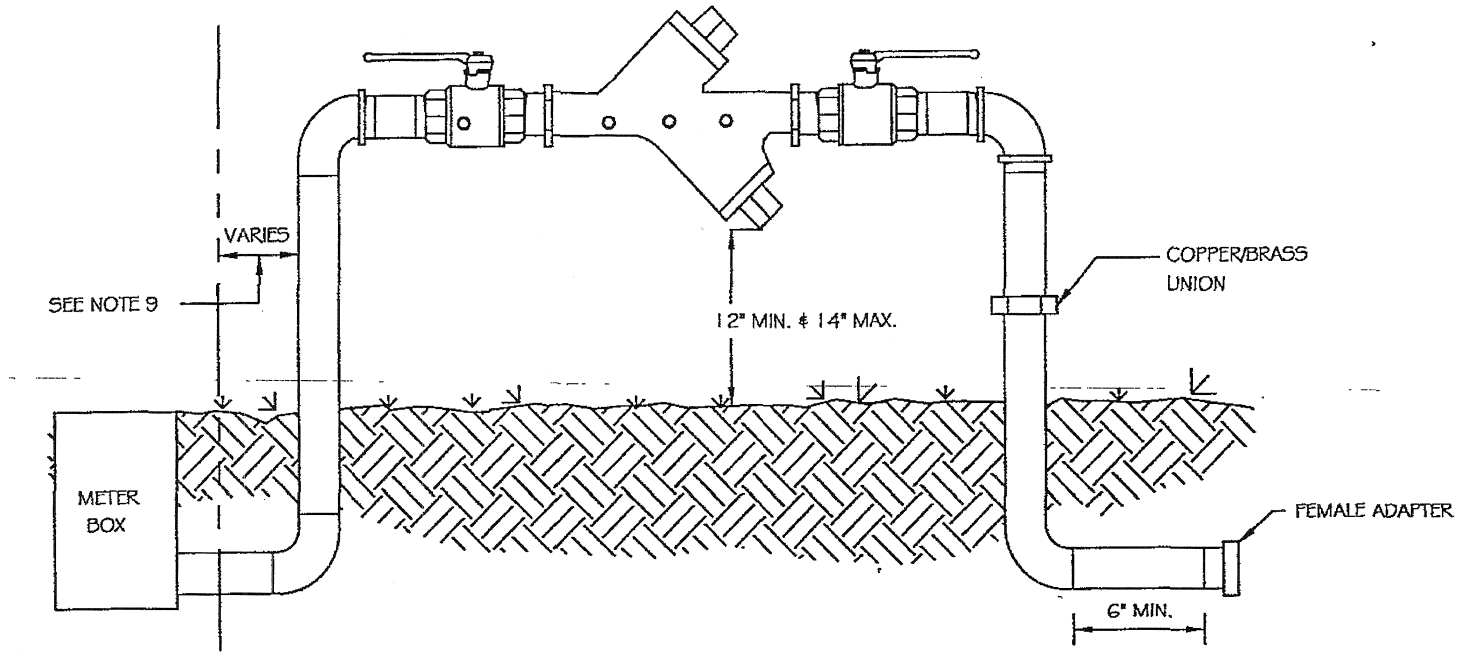
LIST OF MATERIALS

①	Approved double check valve backflow prevention assembly
②	Resilient seated O.S. & Y. gate valve
③	90° ell. Flanged D.I.P. 4" thru 10"
④	Pipe spool. Flanged D.I.P. 4" thru 10"
⑤	Flanged adapter (when required)
⑥	3/4" zinc coated threaded rod, bolt to flanges as shown, typical both sides.
⑦	Test cocks with brass plugs or adaptors with caps installed (4 required)
⑧	Adjustable metal pipe supports and concrete block supports with 1" adjusting rod & nut. Install above grade.
⑨	1/4" B&B chain with lock
⑩	Fire Department Connection consisting of two 2.5" female inlets with national standard fire thread & breakaway covers

GENERAL NOTES:

1. Contact the City of Avondale Water and Wastewater Operations for latest list of approved backflow prevention assemblies or certified testers.
2. Backflow preventers must be tested by a certified tester before final approval is issued.
3. Backflow prevention assembly shall be painted a light tan or a color to match the building or screen wall. Fire department connection shall be painted red. Do not paint the name plate or any brass parts on the assembly.
4. Screening wall, guard posts (if required by fire department) and landscaping materials shall maintain a minimum 36 inch clearance from the assembly.
5. Finished grade underneath the backflow preventer shall be at 95% compaction.
6. Call City of Avondale Public Works a minimum of 24-hours in advance for underground inspection before backfilling trench.
7. Tamper switches on each valve tied to the building fire alarm system are optional.
8. 1/4" B&B chain and lock to lock the valves in the open position are required and will be provided by the city.
9. Detectable marking tape to be approved by the City of Avondale Fire Department to be placed along the full length of the fire line on the customer side from the backflow/fire department connection assembly to the building is required.
10. ***Backflow prevention/fire department connection assembly SHALL be located within 50 feet of a fire hydrant that is attached directly to a city main.***
11. Complete assembly is to be located at the primary entrance to the facility as close to the street as possible or as otherwise directed by the fire department.
12. Identification tags identifying the occupancy or occupancies served by the assembly may be required at the discretion of the fire department.

Detail No. **FP-1-98**	**City of Avondale Standard Details**	APPROVED BY Jim Mitchell DATE 8-7-98	**FIRE PROTECTION DOUBLE CHECK VALVE BACKFLOW PREVENTION ASSEMBLY 4 INCHES THRU 10 INCHES**



NOTES:

1. ALL PIPE/FITTINGS TO BE TYPE "K" RIGID COPPER.
2. LIST OF LATEST APPROVED ASSEMBLIES ON FILE AT ENGINEERING. COPIES AVAILABLE.
3. BACKFLOW PREVENTION ASSEMBLY MUST BE LEVEL AND INSTALLED A MINIMUM OF 12 INCHES AND A MAXIMUM OF 14" FROM ASSEMBLY BODY TO FINAL GRADE.
4. TEST COCKS, (4), SHALL BE FITTED WITH BRASS PLUGS INSTALLED WITH TEFLON TAPE.
5. SHUTOFF VALVES TO BE RESILIENT BALL TYPE WITH REMOVABLE HANDLES.
6. COMPRESSION TYPE FITTINGS ARE NOT ALLOWED.
7. INSTALL THE BACKFLOW PREVENTION ASSEMBLY WITHIN 6 INCHES DOWNSTREAM OF THE LINESETTER AND THE CITY WATER METER.
8. A COPPER/BRASS UNION INSTALLED IN THE MIDDLE OF THE DOWNSTREAM RISER IS NOT REQUIRED IF BACKFLOW ASSEMBLY HAS UNIONS INCORPORATED WITHIN THE ASSEMBLY.
9. ASSEMBLY SHALL BE APPROVED BY UNIVERSITY OF SOUTHERN CALIFORNIA (USC) FOUNDATION FOR CROSS-CONNECTION CONTROL AND HYDRAULIC RESEARCH.
10. ALL PIPE, RECLAIMED AND POTABLE, SHALL BE INSTALLED WITH COPPER TRACING WIRE AND ATTACHED TO EACH VALVE.

C-310 **REPLACES** **89**	CITY OF CHANDLER STANDARD DETAIL	**DOUBLE-CHECK VALVE BACKFLOW PREVENTION INSTALLATION - 3" AND UNDER**	APPROVED: _____ CITY ENGINEER DATE: 1-19-99	DETAIL NO. **C-310** NTS

STANDARD DETAIL G-668

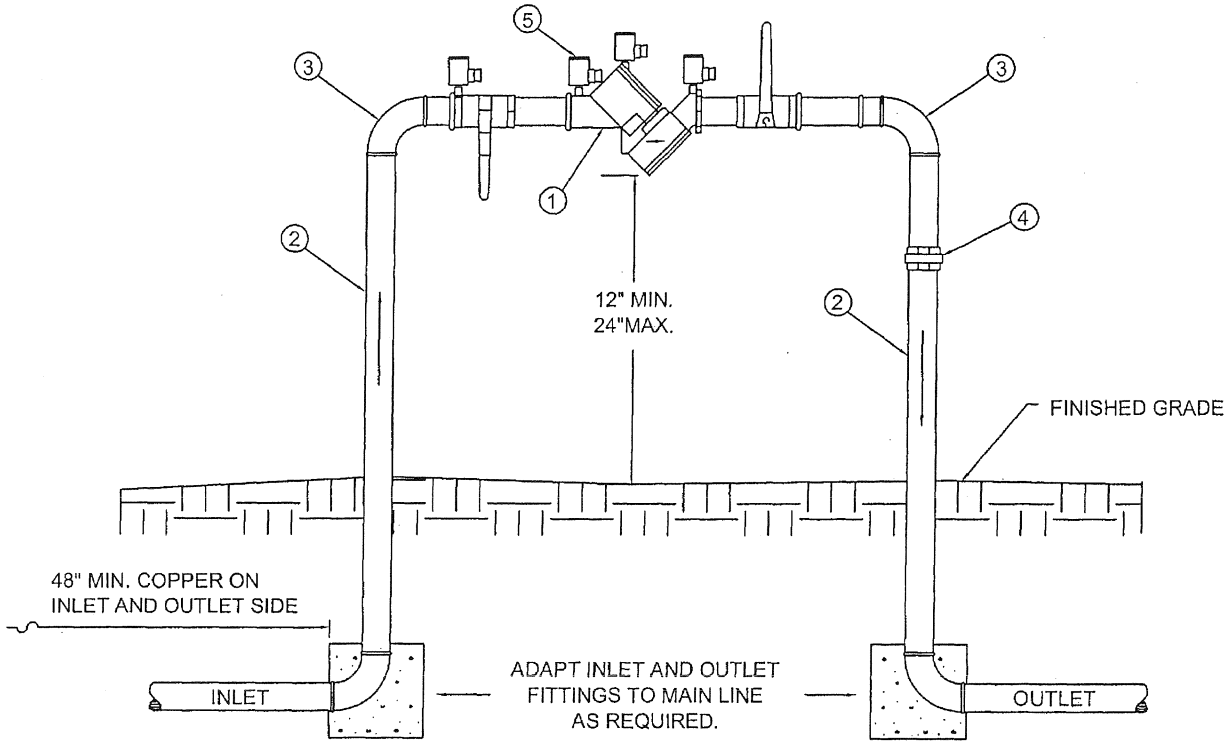
CITY OF GLENDALE
ENGINEERING

GLENDALE

DOUBLE CHECK VALVE BACKFLOW PREVENTION ASSEMBLY FOR ASSEMBLIES 2 1/2 INCHES AND LESS

GENERAL NOTES

1. CONTACT CITY OF GLENDALE, FOR LATEST LIST OF APPROVED BACKFLOW PREVENTION ASSEMBLIES OR CERTIFIED TESTERS.
2. BACKFLOW PREVENTERS MUST BE TESTED BY A CERTIFIED TESTER BEFORE FINAL APPROVAL IS ISSUED.
3. COPPER FITTINGS SHALL BE CONNECTED WITH LEAD FREE SOLDER JOINTS.
4. FINISHED GRADE UNDERNEATH THE BACKFLOW PREVENTER SHALL BE AT 95% COMPACTION.
5. SEE C.O.G. STD. DETAIL G-673 FOR METAL CAGE DETAILS.



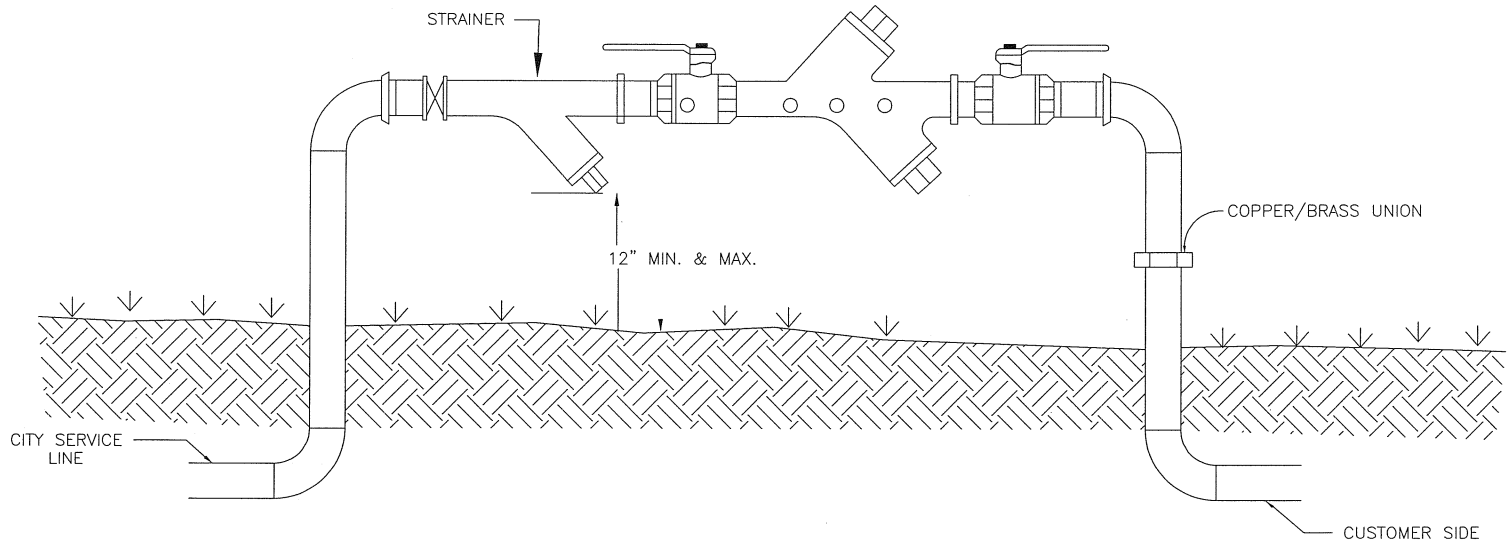
LIST OF MATERIALS

1. APPROVED DOUBLE CHECK VALVE BACKFLOW PREVENTION ASSEMBLY, BALL VALVES INCLUDED.
2. PIPE SPOOL, TYPE "K" COPPER, 3/4" THRU 2 1/2".
3. 90° ELL, COPPER, 3/4" THRU 2 1/2".
4. PIPE UNION, BRASS OR COPPER.
5. TEST COCKS WITH BRASS PLUGS INSTALLED (4 REQUIRED).

APPROVED BY: Larry J Broyles
CITY ENGINEER

6/28/02
DATE

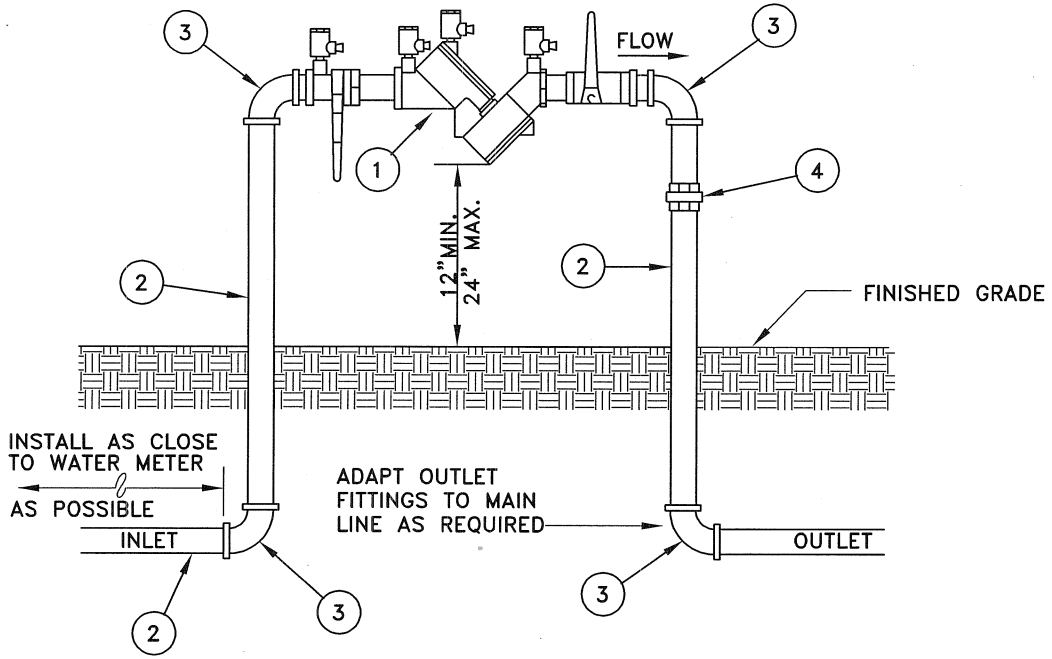
REVISED : JUNE 2002
PREVIOUS :



NOTES:

1. ALL PIPE/FITTINGS TO BE TYPE "K" COPPER.
2. CONTACT CITY OF PHOENIX WATER SERVICES DEPARTMENT, WATER QUALITY DIVISION FOR LIST OF APPROVED BACKFLOW PREVENTION ASSEMBLIES.
3. BACKFLOW PREVENTION ASSEMBLY MUST BE LEVEL AND INSTALLED A MINIMUM AND A MAXIMUM OF 12 INCHES FROM ASSEMBLY BODY TO FINAL GRADE.
4. TEST COCKS, (4) SHALL BE FITTED WITH BRASS PLUGS INSTALLED WITH TEFLON TAPE.
5. SHUTOFF VALVES TO BE RESILIENT BALL TYPE WITH REMOVABLE HANDLES.
6. COMPRESSION TYPE FITTINGS ARE NOT ALLOWED.
7. INSTALL THE BACKFLOW PREVENTION ASSEMBLY IMMEDIATELY DOWNSTREAM OF THE CITY WATER METER.
8. A COPPER/BRASS UNION MUST BE INSTALLED IN THE MIDDLE OF THE DOWNSTREAM RISER.
9. ASSEMBLY SHALL BE APPROVED BY U.S.C. FOUNDATION FOR CROSS-CONNECTION CONTROL AND HYDRAULIC RESEARCH.
10. COPPER FITTINGS SHALL BE CONNECTED WITH LEAD-FREE SOLDER JOINTS.

DETAIL NO. G-3353	CITY OF GOODYEAR STANDARD DETAIL	APPROVED BY: Goodyear Standards and Policies Committee 7/97	DOUBLE - CHECK VALVE BACKFLOW PREVENTION ASSEMBLY INSTALLATION - 2 1/2" AND UNDER	DETAIL NO. G-3353



DOUBLE CHECK VALVE BACKFLOW PREVENTION ASSEMBLY

LIST OF MATERIALS

1	APPROVED DOUBLE CHECK VALVE BACKFLOW PREVENTION ASSEMBLY, BALL VALVES INCLUDED
2	TYPE "L" COPPER PIPE, 3/4" THRU 2"
3	90° ELL, COPPER, 3/4" THRU 2"
4	PIPE UNION, BRASS OR COPPER

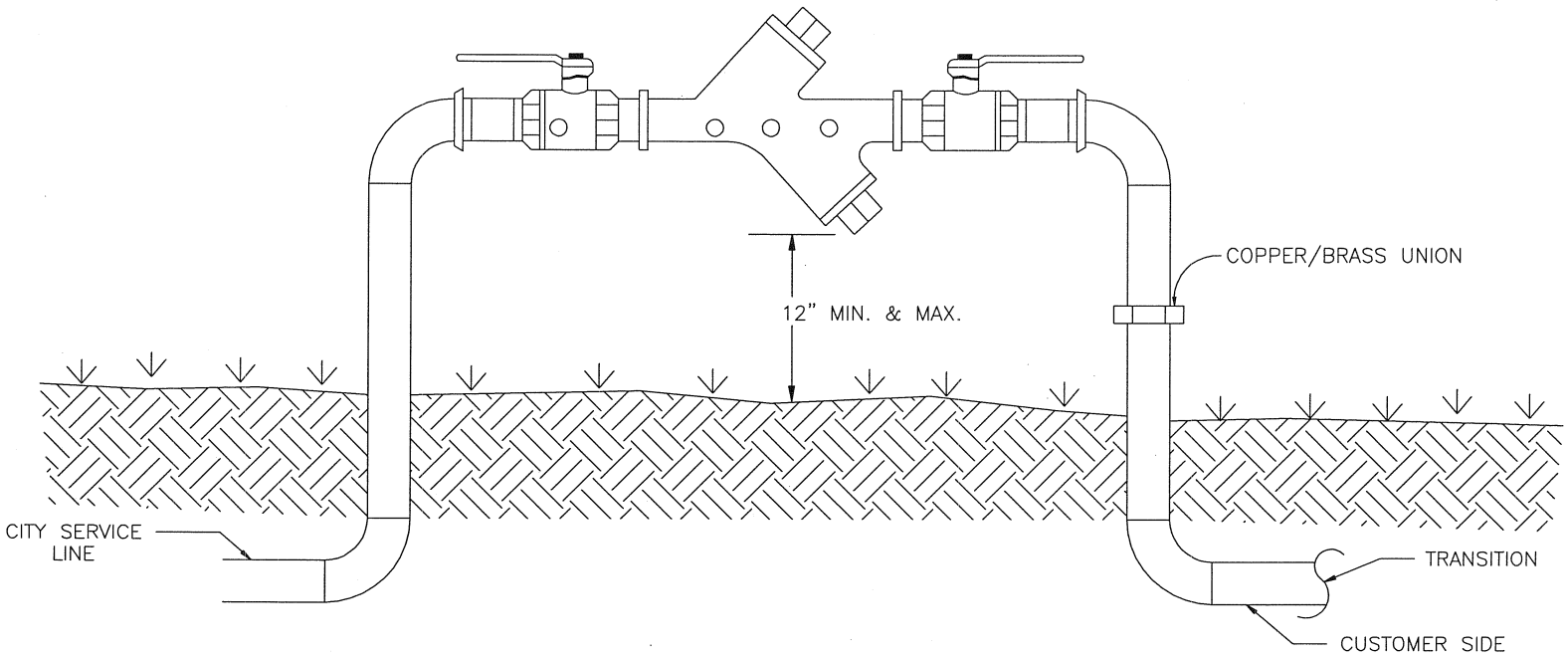
GENERAL NOTES

1. CONTACT CITY OF MESA, WATER QUALITY SERVICES FOR THE LATEST LIST OF APPROVED BACKFLOW PREVENTERS OR CERTIFIED TESTERS.
2. THE REQUIRED BACKFLOW PREVENTION ASSEMBLY SHALL BE A MANUFACTURER AND MODEL NUMBER DESIGNATED IN THE CURRENT CITY OF MESA LIST OF APPROVED BACKFLOW PREVENTION ASSEMBLIES.
3. THE BACKFLOW PREVENTION ASSEMBLY SHALL BE TESTED AND APPROVED BY A CERTIFIED TECHNICIAN DESIGNATED IN THE CURRENT CITY OF MESA LIST OF APPROVED INSPECTORS PRIOR TO THE REQUEST FOR FINAL INSPECTION.
4. ALL COPPER PIPE JOINTS SHALL BE SOLDERED. THE SOLDER ALLOY SHALL COMPLY W/ASTM B 32 HAVING A SILVER CONTENT OF NOT LESS THAN 3.4% INTENDED FOR JOINING COPPER PIPES FOR POTABLE WATER SYSTEMS (GRADES SN 94, SN 95, OR SN 95). THE FLUX SHALL BE TYPE OA FOR GENERAL SOLDERING ON COPPER.
5. INSTALL A BRASS PIPE PLUG IN EACH TESTCOCK ON THE ASSEMBLY.
6. FINISHED GRADE UNDER THE BACKFLOW PREVENTER SHALL BE COMPACTED TO 95% OF MAXIMUM DENSITY.
7. PROVIDE 12–INCH MINIMUM CLEARANCE BETWEEN BACKFLOW PREVENTION ASSEMBLY AND PERMANENT STRUCTURES OR LANDSCAPE VEGETATION.

DOUBLE CHECK VALVE BACKFLOW PREVENTION ASSEMBLY; FOR ASSEMBLIES 2 INCHES AND LESS

DETAIL NO. M–31.4

REV.02/01/02

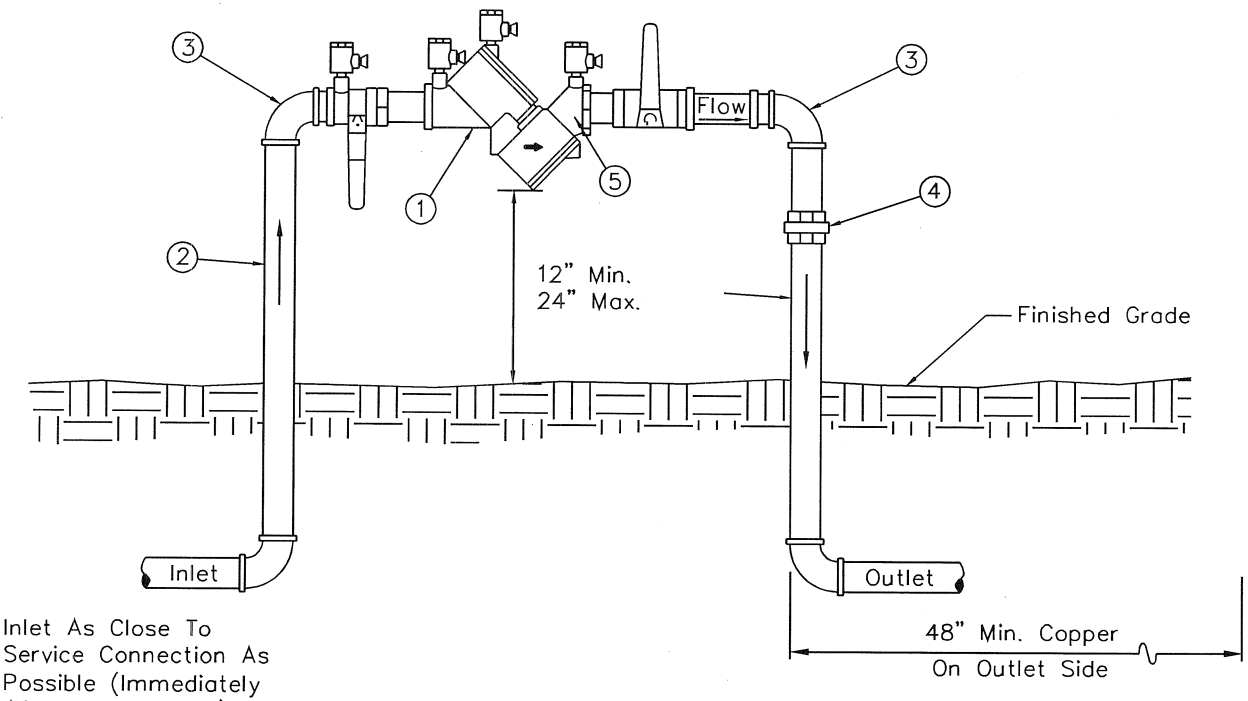


NOTES:

1. ALL PIPE/FITTINGS TO BE TYPE "K" COPPER.
2. CONTACT CITY OF PHOENIX DEVELOPMENT SERVICES DEPARTMENT, CROSS-CONNECTION CONTROL FOR A LIST OF APPROVED BACKFLOW PREVENTION ASSEMBLIES.
3. BACKFLOW PREVENTION ASSEMBLY MUST BE LEVEL AND INSTALLED A MINIMUM AND A MAXIMUM OF 12 INCHES FROM ASSEMBLY BODY TO FINAL GRADE.
4. TEST COCKS, (4) SHALL BE FITTED WITH BRASS PLUGS INSTALLED WITH TEFLON TAPE.
5. SHUTOFF VALVES TO BE RESILIENT BALL TYPE WITH REMOVABLE HANDLES.
6. COMPRESSION TYPE FITTINGS ARE NOT ALLOWED.
7. INSTALL THE BACKFLOW PREVENTION ASSEMBLY IMMEDIATELY DOWNSTREAM OF THE CITY WATER METER.
8. A COPPER/BRASS UNION MUST BE INSTALLED IN THE MIDDLE OF THE DOWNSTREAM RISER.
9. ASSEMBLY SHALL BE APPROVED BY U.S.C. FOUNDATION FOR CROSS-CONNECTION CONTROL AND HYDRAULIC RESEARCH.
10. COPPER FITTINGS SHALL BE CONNECTED WITH LEAD-FREE SOLDER JOINTS.
11. TRANSITION FROM "K" COPPER TO OTHER APPROVED PIPING MATERIALS SHALL BE IN THE HORIZONTAL PIPING A MINIMUM OF 12" BELOW GRADE.

DETAIL NO.		DBL-CHECK VALVE BACKFLOW PREVENTION ASSM'Y INSTALLATION-2 1/2" & UNDER	APPROVED	DETAIL NO.
P1353	City of Phoenix STANDARD DETAIL		CITY ENGINEER — 6-27-01 DATE	P1353

REVISED 5/05/04



Inlet As Close To Service Connection As Possible (Immediately After Water Meter). Copper On Inlet Side.

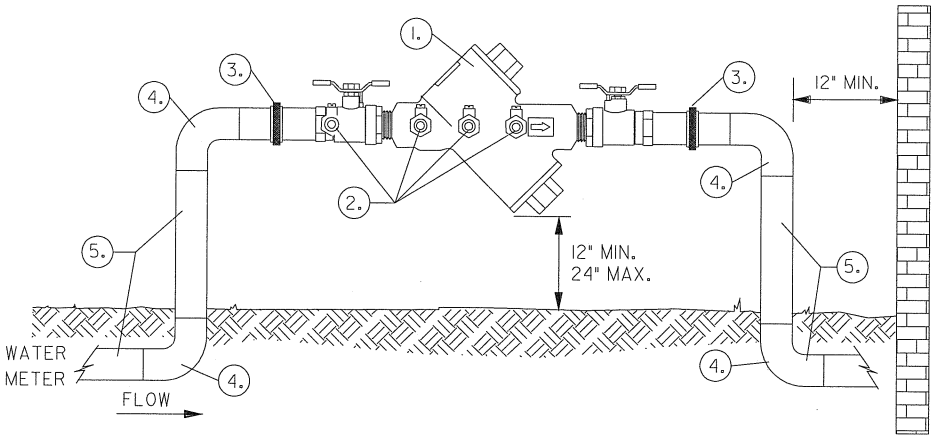
GENERAL NOTES

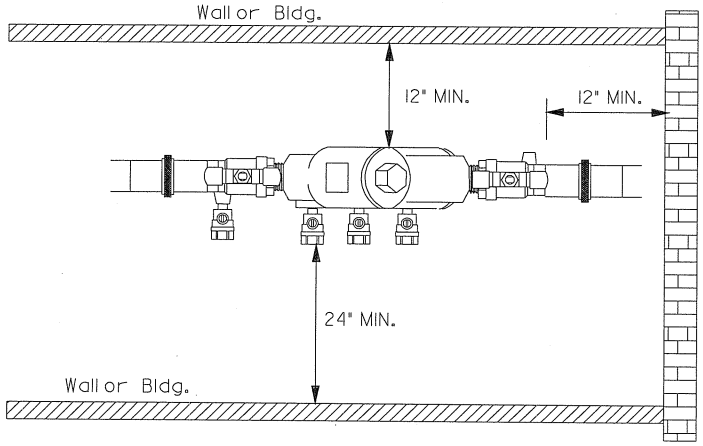
1. Backflow assemblies must be tested by a certified tester that is recognized by the City of Scottsdale.
2. Copper fittings shall be connected with lead free solder joints.
3. Finished grade underneath the backflow preventer shall be at 95% compaction.
4. All nipples to be copper or brass.
5. Piping under the City right of way must be type "K" copper.
6. Call for underground inspection before backfilling trench.
7. Vertical installations of assemblies on fire sprinkler systems are allowed using assemblies approved for use in the vertical position on fire systems.
8. Approvals for backflow assemblies must have Seal Approval from the American Society of Sanitation Engineers. Backflow assemblies installed on fire supression systems must also have approval from Underwriters Laboratories and/or Factory Mutual Research Corporation.

LIST OF MATERIALS

① Approved double check valve backflow prevention assembly, ball valves included.
② Pipe spool, type "L" hard copper, 3/4" thru 2 1/2".
③ 90° ell, copper, 3/4" thru 2 1/2".
④ Pipe union, brass or copper.
⑤ Test cocks with brass plugs or adaptors with caps installed. (4 required)

DETAIL NO. 2352	City of Scottsdale Standard Details	APPROVED BY: Scottsdale Standards & Specifications Committee	DOUBLE CHECK VALVE BACKFLOW PREVENTION ASSEMBLY FOR ASSEMBLIES 3/4 INCH THRU 2 1/2 INCHES	DETAIL NO. 2352





MATERIALS LIST

1. USC FCCCHR Approved Double Check Backflow Assembly.
2. Test Cocks.
3. Brass 3 pc. Union (One required)
4. Copper x Copper 90 Ells.
5. Type "K" Copper Tubing.

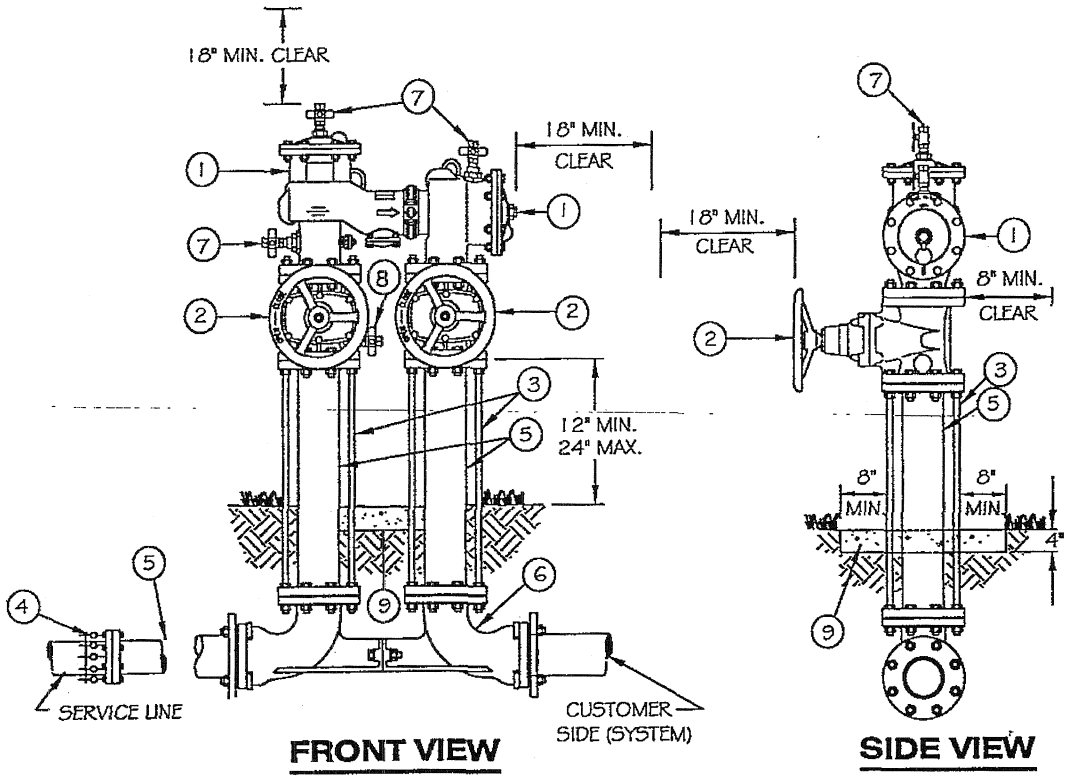
NOTES:

1. Contact City of Tempe Environmental Services Section at 350-8200 for Latest List of USC FCCCHR Approved Assemblies, (Assembly Must be Tested Before Certificated of Occupancy will be Issued.)
2. Copper Fittings shall be Connected with Lead Free Solder.
3. Details for Screening shall be Submitted to City of Tempe Engineering and Development Services Departments for Approval.
4. Screening Required: ¾Thru 2 inch Assemblies shall be Screened by the Use of Plant Materials.
5. Clearance: Minimum 12 Inches Away from any Wall or Structure. Minimum 24 Inches Away from Any Wall or Structure if Test Cocks Face Wall or Structure. Minimum 12 Inches Above Finish Grade, Maximum 24 Inches.

APPROVED: ORIGINAL SIGNATURE ON FILE AT THE CITY OF TEMPE

CITY ENGINEER — DATE

CITY OF TEMPE PUBLIC WORKS DEPARTMENT	DOUBLE CHECK BACKFLOW ASSEMBLY ¾ - 2 INCH	DETAIL T-214-A REVISED 1998



FRONT VIEW

SIDE VIEW

LIST OF MATERIALS

1. APPROVED DOUBLE CHECK VALVE BACKFLOW PREVENTION ASSEMBLY. (DOUBLE CHECK DETECTOR ASSEMBLY INSTALLATION SIMILAR).
2. N.R.S. GATE VALVE.
3. 3/4" ZINC COATED THREADED ROD BOLTED TO FLANGES, BOTH SIDES TYPICAL EQUAL TENSION MINIMUM FOUR RODS, EVENLY SPACED.
4. FLANGED ADAPTER, (WHEN REQUIRED).
5. PIPE SPOOL. (FLANGED DIP)
6. VALVE SETTER.
7. TEST COCKS, (3 REQUIRED) WITH BRASS PLUGS USING ONLY TEFLON TAPE.
8. TEST COCK WITH A STEEL 90° ELL WITH BRASS PLUG USING ONLY TEFLON TAPE.
9. 4" CLASS "B" CONCRETE PER MAG STANDARD SPECIFICATIONS 725.

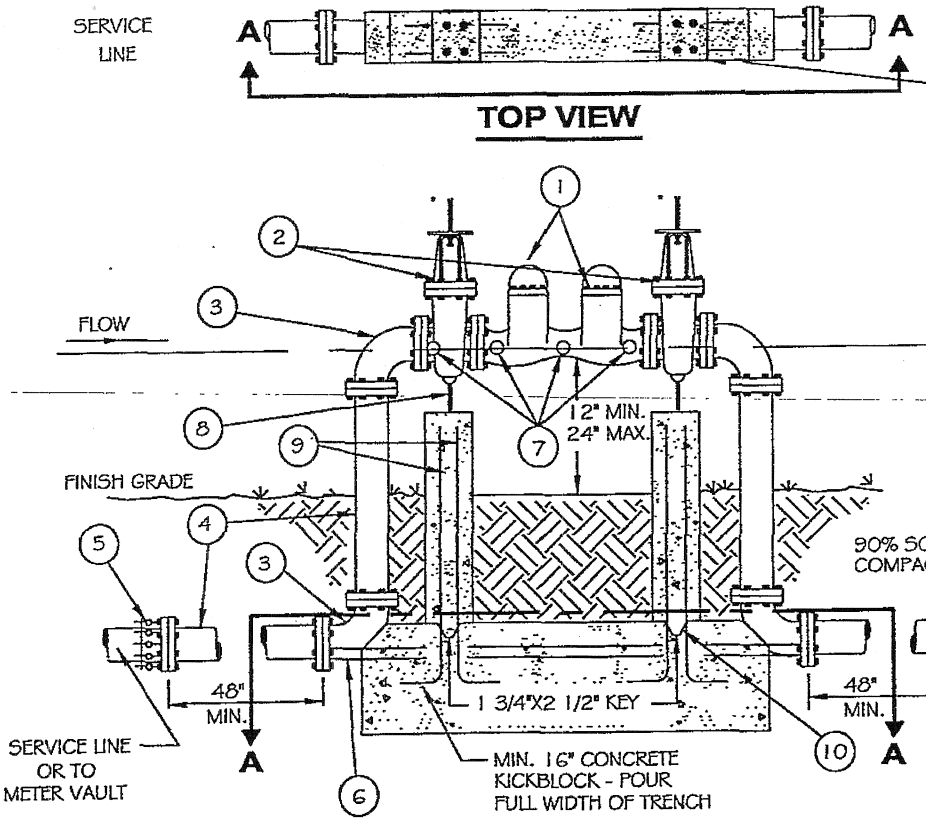
NOTES:

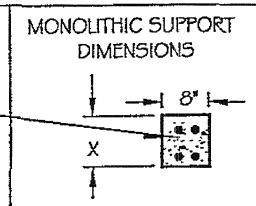
1. LIST OF LATEST APPROVED ASSEMBLIES ON FILE AT ENGINEERING. COPIES AVAILABLE.
2. ASSEMBLY SHALL BE AS APPROVED BY UNIVERSITY OF SOUTHERN CALIFORNIA (USC) FOUNDATION FOR CROSS-CONNECTION CONTROL AND HYDRAULIC RESEARCH.
3. ABOVE GROUND PORTION OF ASSEMBLY TO BE PAINTED LIGHT TAN OR EQUIVALENT BACKGROUND COLOR.

SCREENING METHOD

1. SCREEN WALLS, PLANT MATERIAL BERMING AND/OR BUILDING ORIENTATION SHALL BE SUBMITTED TO DEVELOPMENT SERVICES FOR REVIEW AND APPROVAL PRIOR TO START OF CONSTRUCTION.
2. METHOD OF SCREENING USED MAY REQUIRE FDC'S TO BE REMOTELY LOCATED. FDC LOCATION AND METHOD OF INSTALLATION SHALL BE INCLUDED ON SCREENING PLAN SUBMITTED TO DEVELOPMENT SERVICES FOR REVIEW AND APPROVAL.

C-312 **REPLACES** **91A**	CITY OF CHANDLER STANDARD DETAIL	**DOUBLE CHECK VALVE BACKFLOW PREVENTION ASSEMBLY 2 1/2", 4", 6", 8" 10" PRIVATE DOMESTIC WATER MAIN**	APPROVED: Bryan D. Patterson CITY ENGINEER DATE: 11-19-99	DETAIL NO. **C-312** NTS





LIST OF MATERIALS

1. APPROVED DOUBLE CHECK VALVE BACKFLOW PREVENTION ASSEMBLY. (DOUBLE CHECK DETECTOR ASSEMBLY INSTALLATION SIMILAR).
2. O.S.&Y. GATE VALVE, N.R.S. GATE VALVE, IF PREFERRED.
3. 90° ELL. (FLANGED D.I.P.)
4. PIPE SPOOL (FLANGED D.I.P.)
5. FLANGED ADAPTER (WHEN REQUIRED).
6. 3/4" ZINC COATED THREADED ROD, BOLTED TO FLANGES AS SHOWN, BOTH SIDES TYPICAL EQUAL TENSION.
7. TEST COCKS (4 REQUIRED WITH BRASS PLUGS USING ONLY TEFLON TAPE.)
8. ADJUSTABLE PIPE SUPPORT MUST BE PERMANENTLY ATTACHED TO BASE, 6" MAXIMUM HEIGHT.
9. #6 REINFORCING STEEL, DEFORMED BAR, 4" APART, EVENLY SPACED.
10. CONSTRUCTION JOINT KEY TO BE 1 3/4" X 2 1/2".

SCREENING METHOD

1. SCREEN WALLS, PLANT MATERIAL, BERMING AND/OR BUILDING ORIENTATION SHALL BE SUBMITTED TO DEVELOPMENT SERVICES FOR REVIEW AND APPROVAL PRIOR TO START OF CONSTRUCTION.

NOTES:

1. LIST OF LATEST APPROVED ASSEMBLIES ON FILE AT ENGINEERING. COPIES AVAILABLE.
2. ASSEMBLY SHALL BE AS APPROVED BY UNIVERSITY OF SOUTHERN CALIFORNIA (USC) FOUNDATION FOR CROSS-CONNECTION CONTROL AND HYDRAULIC RESEARCH.
3. ABOVE GROUND PORTION OF ASSEMBLY TO BE PAINTED LIGHT TAN OR EQUIVALENT BACKGROUND COLOR.

C-314 REPLACES **91**	CITY OF CHANDLER STANDARD DETAIL	**DOUBLE CHECK VALVE BACKFLOW PREVENTION ASSEMBLY 3", 4", 6", 8", 10"**	APPROVED: Bryan D. Patterson CITY ENGINEER DATE: 11-19-99	DETAIL NO. **C-314** NTS

STANDARD DETAIL G-670

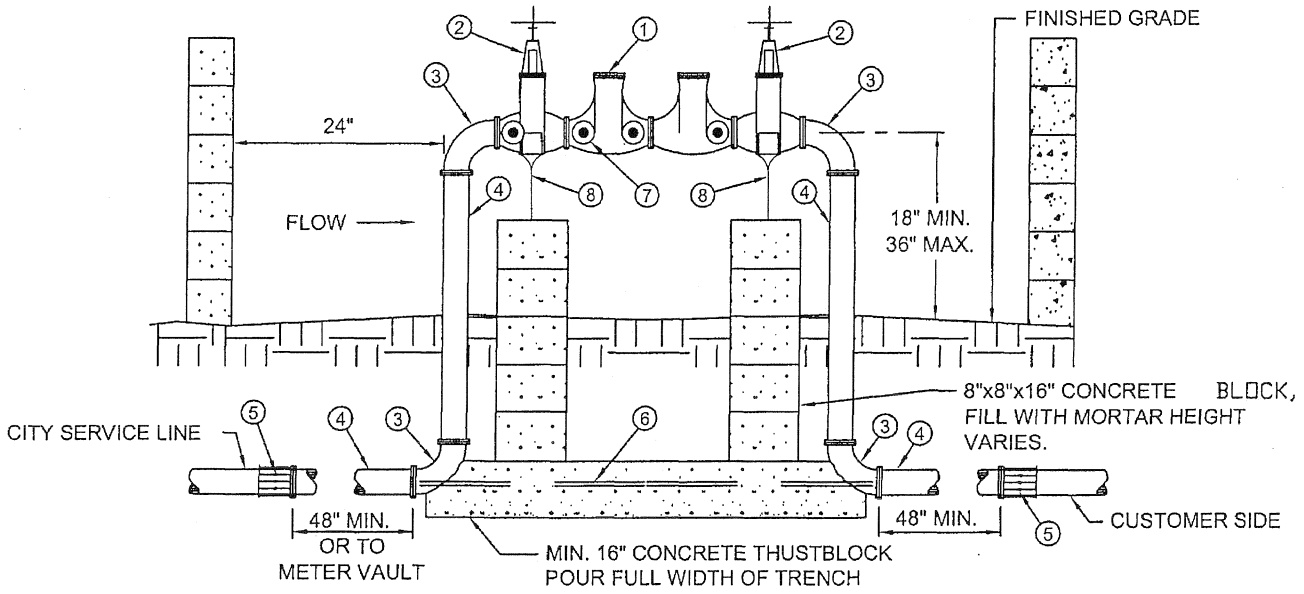
CITY OF GLENDALE
ENGINEERING

GLENDALE

DOUBLE CHECK VALVE BACKFLOW PREVENTION ASSEMBLY FOR ASSEMBLIES 3 INCHES AND LARGER

GENERAL NOTES

1. CONTACT CITY OF GLENDALE, FOR LATEST LIST OF APPROVED BACKFLOW PREVENTION ASSEMBLIES OR CERTIFIED TESTERS.
2. BACKFLOW PREVENTERS MUST BE TESTED BY A CERTIFIED TESTER BEFORE FINAL APPROVAL IS ISSUED.
3. BACKFLOW PREVENTERS SHALL BE PAINTED LIGHT TAN OR A COLOR TO MATCH THE BUILDING. DO NOT PAINT THE NAME PLATE OR ANY BRASS PARTS ON THE ASSEMBLY.
4. FOR BACKFLOW PREVENTERS REQUIRING GUARD POSTS SEE DETAIL G-672. BACKFLOW PREVENTERS FOR 3-INCH AND LARGER WILL BE ENCLOSED BY A SCREENING WALL AND SHALL MAINTAIN A 24 INCH CLEARANCE AROUND THE ASSEMBLY.
5. FINISHED GRADE UNDERNEATH THE BACKFLOW PREVENTER SHALL BE AT 95% COMPACTION.
6. BACKFLOW PREVENTERS ON FIRE LINES MAY REQUIRE TAMPER SWITCHES ON THE SHUT OFF VALVES.



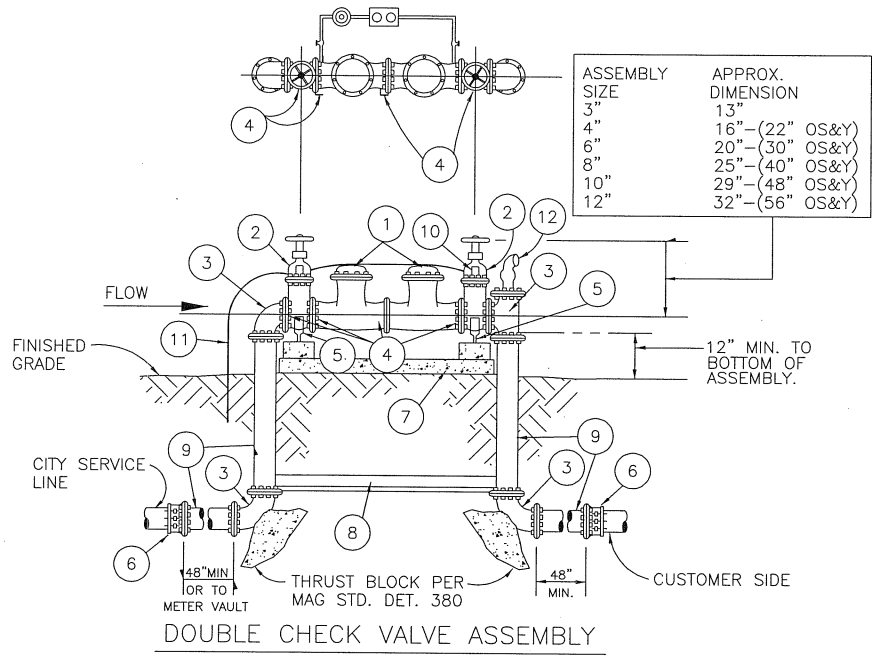
LIST OF MATERIALS

1. APPROVED DOUBLE CHECK VALVE BACKFLOW PREVENTION ASSEMBLY.
2. RESILIENT SEATED GATE VALVE.
   O.S. & Y. (FIRE LINE CONNECTION)
   N.R.S. (NON FIRE LINE)
3. 90° ELL. FLANGED D.I.P. 3" THRU 10".
4. PIPE SPOOL FLANGED D.I.P. 3" THRU 10".
5. FLANGED ADAPTER (WHEN REQUIRED).
6. 3/4" ZINC COATED THREADED ROD, BOLT TO FLANGES AS SHOWN, TYPICAL BOTH SIDES.
7. TEST COCKS WITH BRASS PLUGS INSTALLED. (4 REQUIRED).
8. ADJUSTABLE METAL PIPE SUPPORTS. (ASSEMBLIES 4" AND LARGER).

APPROVED BY: Harry J. Broyles
CITY ENGINEER

DATE 6/28/02

REVISED : JUNE 2002



DOUBLE CHECK VALVE ASSEMBLY

GENERAL NOTES

1. ASSEMBLY SHALL BE APPROVED BY U.S.C. FOUNDATION FOR CROSS CONNECTION AND HYDRAULIC RESEARCH.
2. CONTACT CITY OF GOODYEAR, WATER OPERATIONS DIVISION, FOR A LIST OF APPROVED BACKFLOW PREVENTION ASSEMBLIES.
3. FOUR (4) TEST COCKS TO BE INSTALLED PER U.S.C.
4. COPPER FITTINGS SHALL BE CONNECTED WITH LEAD–FREE SOLDER JOINTS.
5. FINISHED GRADE BELOW BACKFLOW PREVENTER SHALL BE 95% COMPACTION.
6. ASSEMBLY, EXCEPT SIAMESE F.D.C., MAY BE PAINTED TO BLEND WITH LANDSCAPE SURFACE TREATMENT OR ON–SITE STRUCTURES.
7. THE ASSEMBLY MAY ALSO BE SCREENED WITH SHRUBBERY OR BE ENCLOSED WITHIN A WALL TYPE STRUCTURE. ADEQUATE DRAINAGE FOR SURFACE WATER IS REQUIRED.
8. ANY SCREENING/ENCLOSURE MUST PROVIDE A MINIMUM 18" ACCESS OPENING (UNSECURED GATES ARE ACCEPTABLE) AND SIDE WALLS OR SHRUBBERY MUST BE A MINIMUM OF 24" FROM THE OUTSIDE FACE OF ANY PORTION OF THE BACKFLOW PREVENTION DEVICE.
9. ASSEMBLY MAY BE PROTECTED BY GUARD POSTS (MODIFY PER G–3332, HYDRANT GUARDS, GOODYEAR SUPPLEMENT TO MAG).

LIST OF MATERIALS

(1) APPROVED DOUBLE CHECK VALVE ASSEMBLY.

(2) GATE VALVE, RESILIENT SEATED (NON–RISING STEM)(O.S.&Y. REQUIRED ON FIRELINE).

(3) 90° ELL (FLANGED D.I.P. 3" THROUGH 12").

(4) TEST COCK, RESILIENT SEATED (4 REQUIRED) FIT WITH BRASS PLUG.

(5) ADJUSTABLE PIPE SUPPORT PERMANENTLY ATTACHED TO BASE (4" AND LARGER ASSEMBLY ONLY).

(6) FLANGE ADAPTER (WHEN REQUIRED).

(7) CONCRETE SUPPORT PAD 4" THICK BY 18" WIDE MINIMUM BENEATH 4" AND LARGER ASSEMBLIES. (CLASS "A" CONC).

(8) 3"X3"X1/4" STEEL ANGLE. BOLT TO FLANGE, EACH END WITH ONE BOLT. COAT WITH COAL TAR EPOXY (16 MILS) REQUIRED ON 4" AND LARGER ASSEMBLIES.

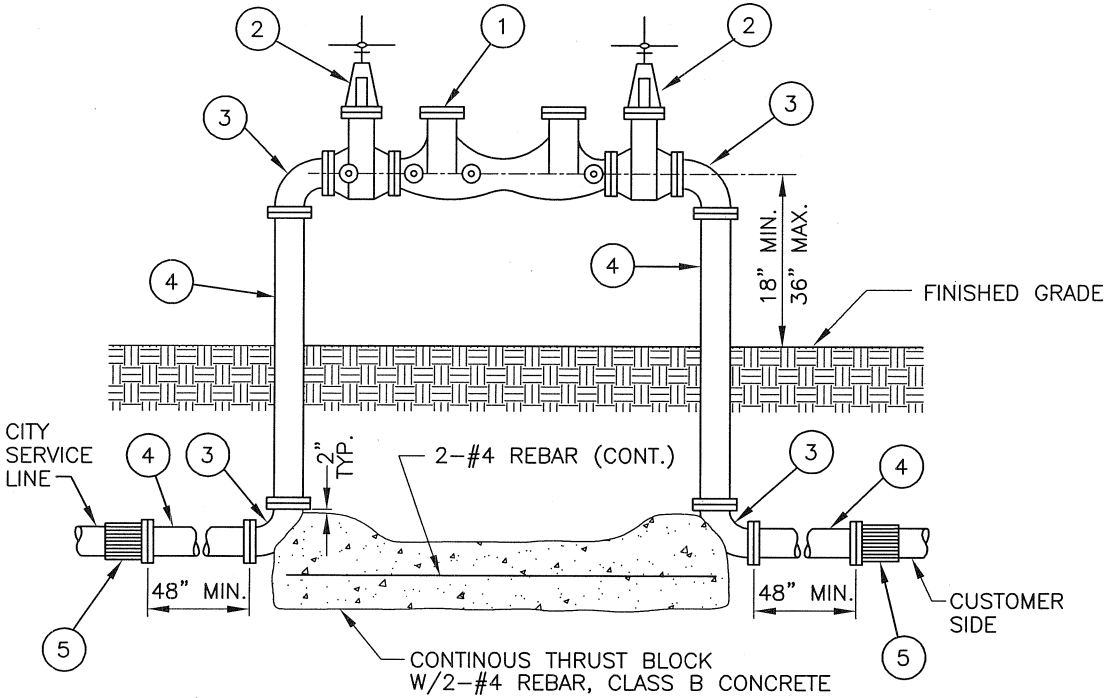
(9) PIPE SPOOL (FLANGED D.I.P. 3" THRU 12").

(10) TAMPER SWITCH (ON FIRELINE ONLY, OPTIONAL).

(11) ELECTRICAL CONDUIT FOR TAMPER SWITCH.

(12) TEE, BLIND FLANGE TAPPED 4" WITH SIAMESE 2 1/2" F.D.C. WITH NATIONAL STANDARD THREADS AND CHECK VALVE PAINTED RED.

DETAIL NO. G-3352	CITY OF GOODYEAR STANDARD DETAIL	APPROVED BY: Goodyear Standards and Policies Committee 7/97	DOUBLE-CHECK DETECTOR VALVE BACKFLOW PREVENTION ASSEMBLY INSTALLATION - 3" AND OVER	DETAIL NO. G-3352



DOUBLE CHECK VALVE BACKFLOW PREVENTION ASSEMBLY

LIST OF MATERIALS

1. APPROVED DOUBLE CHECK VALVE BACKFLOW PREVENTION ASSEMBLY.
2. RESILIENT SEATED GATE VALVE. O.S. & Y. (FIRE LINE CONNECTION) N.R.S. (NON FIRE LINE)
3. 90° ELL. FLANGED D.I.P. 2 1/2" THRU 10"
4. PIPE SPOOL. FLANGED D.I.P. 2 1/2" THRU 10"
5. FLANGED ADAPTER (WHEN REQUIRED)

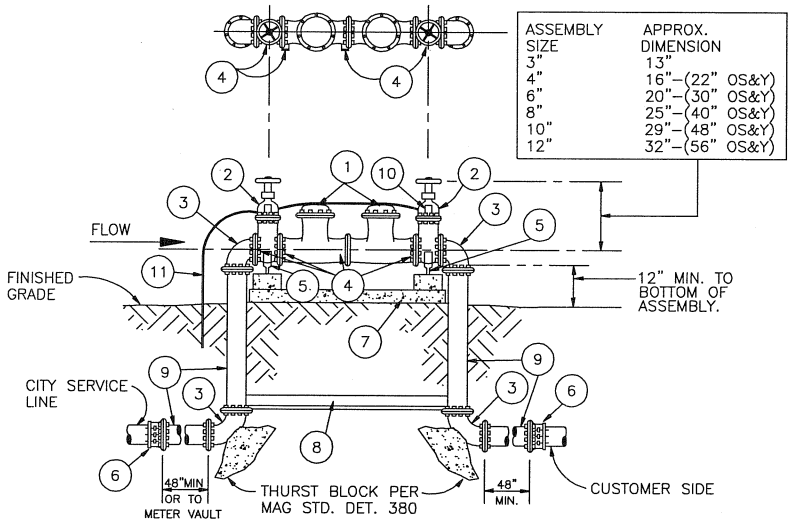
GENERAL NOTES

1. CONTACT CITY OF MESA, WATER QUALITY SERVICES FOR THE LATEST LIST OF APPROVED BACKFLOW PREVENTERS OR CERTIFIED TESTERS.
2. THE REQUIRED BACKFLOW PREVENTION ASSEMBLY SHALL BE A MANUFACTURER AND MODEL NUMBER DESIGNATED IN THE CURRENT CITY OF MESA LIST OF APPROVED BACKFLOW PREVENTION ASSEMBLIES.
3. THE BACKFLOW PREVENTION ASSEMBLY SHALL BE TESTED AND APPROVED BY A CERTIFIED TECHNICIAN DESIGNATED IN THE CURRENT CITY OF MESA LIST OF APPROVED INSPECTORS PRIOR TO THE REQUEST FOR FINAL INSPECTION.
4. BACKFLOW PREVENTERS SHALL BE PAINTED LIGHT TAN OR A COLOR TO MATCH THE BUILDING. DO NOT PAINT THE NAME PLATE OR ANY BRASS PARTS OF THE ASSEMBLY.
5. INSTALL A BRASS PIPE PLUG IN EACH TESTCOCK ON THE ASSEMBLY.
6. ALL BACKFLOW PREVENTERS SHALL BE PROTECTED BY GUARD POSTS. SEE C.O.M. DETAIL M-32.
7. FINISHED GRADE UNDER THE BACKFLOW PREVENTER SHALL BE COMPACTED TO 95% OF MAXIMUM DENSITY.
8. BACKFLOW PREVENTERS ON FIRE LINES MAY REQUIRE TAMPER SWITCHES ON THE SHUT OFF VALVES. CONTACT CITY OF MESA FIRE PREVENTION FOR SPECIFIC REQUIREMENTS.
9. PROVIDE 12-INCH MINIMUM CLEARANCE BETWEEN BACKFLOW PREVENTION ASSEMBLY AND PERMANENT STRUCTURES.

DOUBLE CHECK VALVE BACKFLOW PREVENTION ASSEMBLY; FOR ASSEMBLIES 2 1/2 INCHES AND LARGER

DETAIL NO. M-31.2

REV.01/01/04



DOUBLE CHECK VALVE ASSEMBLY

GENERAL NOTES

1. ASSEMBLY SHALL BE APPROVED BY U.S.C. FOUNDATION FOR CROSS CONNECTION AND HYDRAULIC RESEARCH.
2. CONTACT CITY OF PHOENIX DEVELOPMENT SERVICES DEPARTMENT, CROSS–CONNECTION CONTROL FOR A LIST OF APPROVED BACKFLOW PREVENTION ASSEMBLIES.
3. FOUR (4) TEST COCKS TO BE INSTALLED PER U.S.C.
4. COPPER FITTINGS SHALL BE CONNECTED WITH LEAD–FREE SOLDER JOINTS.
5. FINISHED GRADE BELOW BACKFLOW PREVENTER SHALL BE 95% COMPACTION.
6. ASSEMBLY MAY BE PAINTED TO BLEND WITH LANDSCAPE SURFACE TREATMENT OR ON–SITE STRUCTURES.
7. THE ASSEMBLY MAY ALSO BE SCREENED WITH SHRUBBERY OR BE ENCLOSED WITHIN A WALL TYPE STRUCTURE. ADEQUATE DRAINAGE FOR SURFACE WATER IS REQUIRED.
8. ANY SCREENING/ENCLOSURE MUST PROVIDE A MINIMUM 18" ACCESS OPENING (UNSECURED GATES ARE ACCEPTABLE) AND SIDE WALLS OR SHRUBBERY MUST BE A MINIMUM OF 24" FROM THE OUTSIDE FACE OF ANY PORTION OF THE BACKFLOW PREVENTION DEVICE.
9. ASSEMBLY MAY BE PROTECTED BY GUARD POSTS (MODIFY P–1359, HYDRANT GUARDS, PHOENIX SUPPLEMENT TO MAG).

LIST OF MATERIALS

(1) APPROVED DOUBLE CHECK VALVE ASSEMBLY.

(2) GATE VALVE, RESILIENT SEATED (NON–RISING STEM)(O.S.&Y. REQUIRED ON FIRELINE).

(3) 90° ELL (FLANGED D.I.P. 3" THROUGH 12").

(4) TEST COCK, RESILIENT SEATED (4 REQUIRED) FIT WITH BRASS PLUG.

(5) ADJUSTABLE PIPE SUPPORT PERMANENTLY ATTACHED TO BASE (4" AND LARGER ASSEMBLY ONLY).

(6) FLANGE ADAPTER (WHEN REQUIRED).

(7) CONCRETE SUPPORT PAD 4" THICK BY 18" WIDE MINIMUM BENEATH 4" AND LARGER ASSEMBLIES. (CLASS "A" CONC).

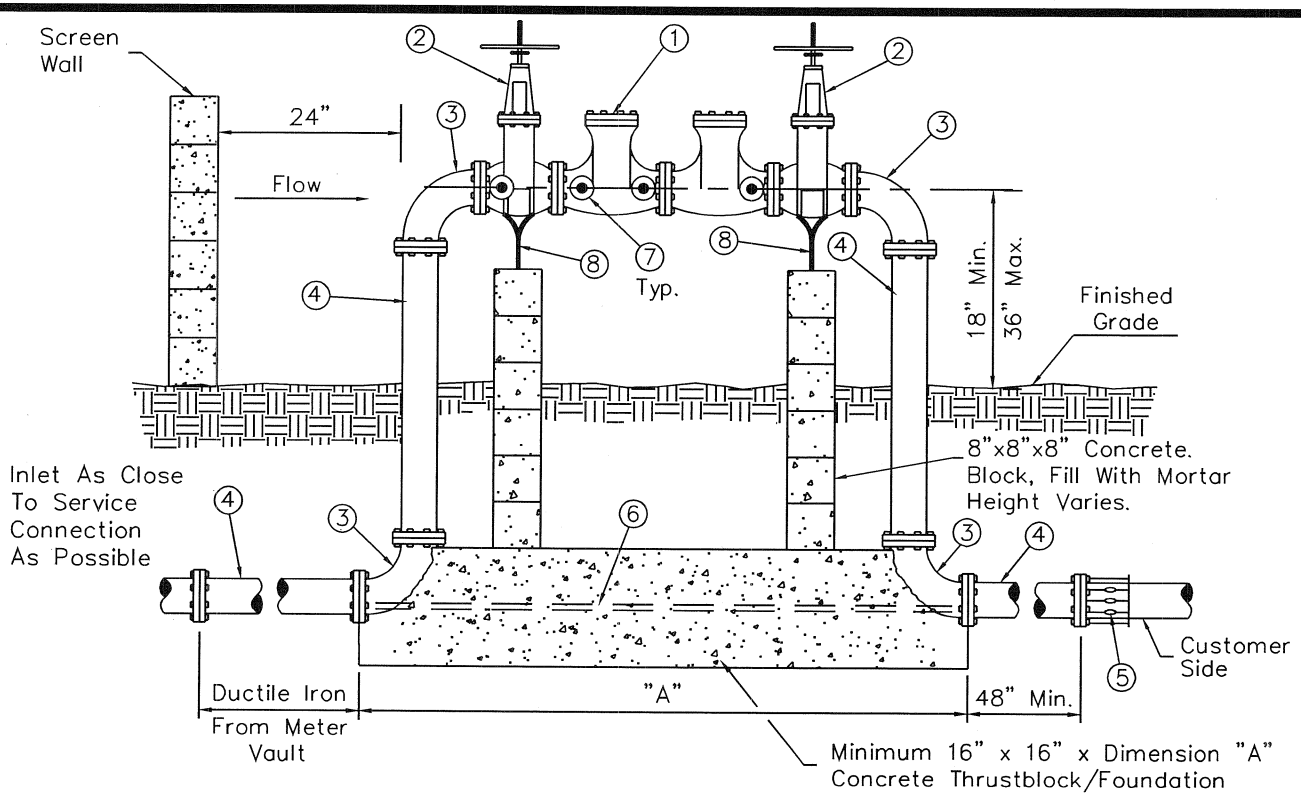
(8) 3"X3"X1/4" STEEL ANGLE. BOLT TO FLANGE, EACH END WITH ONE BOLT. COAT WITH COAL TAR EPOXY (16 MILS) REQUIRED ON 4" AND LARGER ASSEMBLIES.

(9) PIPE SPOOL (FLANGED D.I.P. 3" THRU 12").

(10) TAMPER SWITCH (ON FIRELINE ONLY, OPTIONAL).

(11) ELECTRICAL CONDUIT FOR TAMPER SWITCH.

DETAIL NO.				
P1352	**City of Phoenix STANDARD DETAIL**	DBL–CHECK VALVE–BACKFLOW PREVENTION ASSEMBLY INSTALLATION – 3" AND OVER	APPROVED _____ CITY ENGINEER 6-27-01 DATE	DETAIL NO. P1352



REVISED 5/5/04

GENERAL NOTES

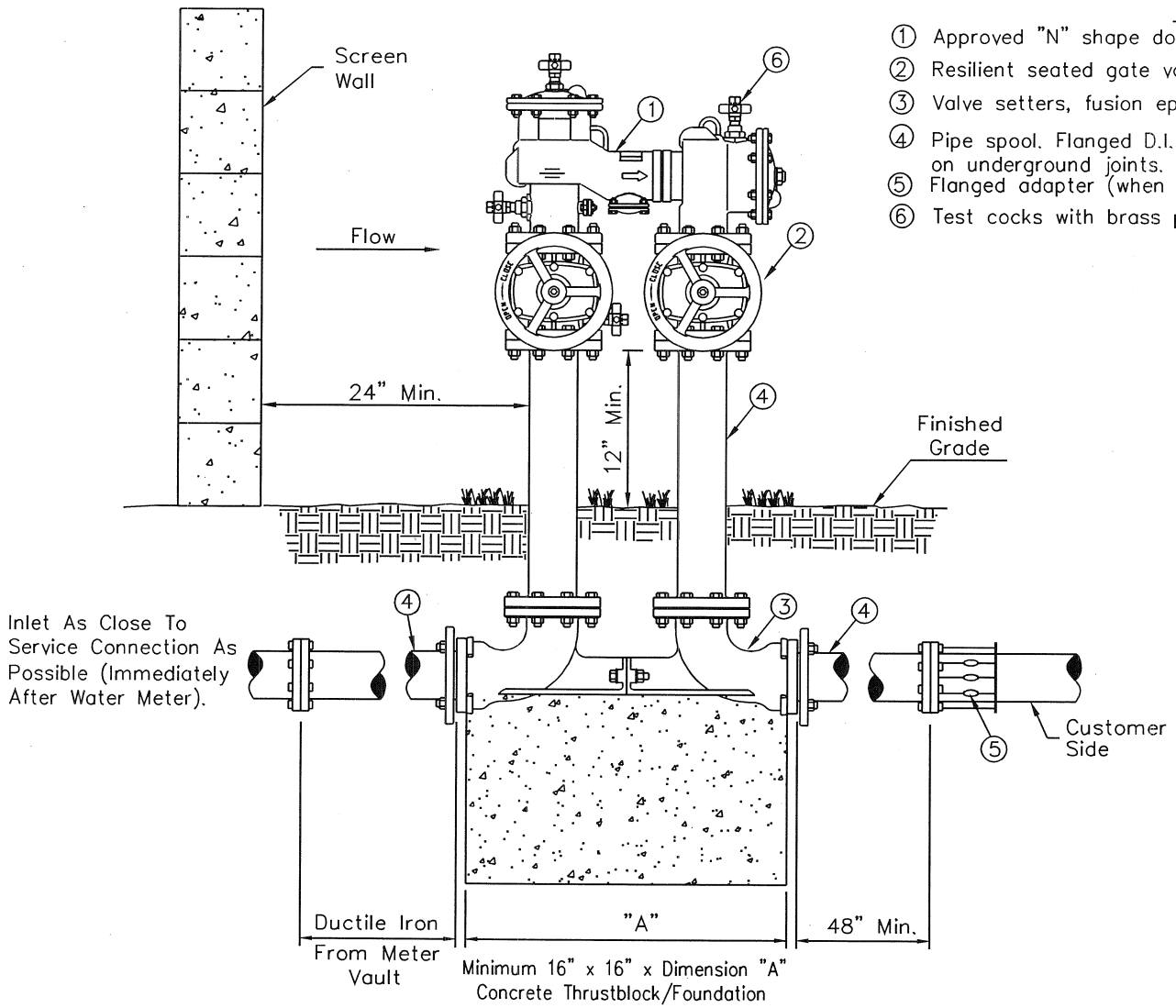
1. Backflow assemblies must be tested by a certified tester that is recognized by the City of Scottsdale.
2. Backflow preventers shall be painted light tan or a color to match the building. Do not paint the name plate or any brass parts on the assembly.
3. For backflow preventers requiring guard posts see Detail 2356. Backflow preventers enclosed by screening shall maintain a 24 inch clearance around the assembly.
4. Finished grade underneath the backflow preventer shall be at 95% compaction.
5. Backflow preventers on fire lines may require tamper switches on the shut off valves. Contact City Of Scottsdale Plan Review, Fire Dept.
6. Call for underground inspection before backfilling trench.
7. Vertical installations of assemblies on fire sprinkler systems are allowed using assemblies approved for use in the vertical position on fire systems.
8. Approvals for backflow assemblies must have Seal Approval from the American Society of Sanitation Engineers. Backflow assemblies installed on fire supression systems must also have approval from Underwriters Laboratories and/or Factory Mutual Research Corporation.

LIST OF MATERIALS

① Approved double check valve backflow prevention assembly.
② Resilient seated gate valve.
O.S. & Y. (fire line connection)
N.R.S. (non fire line)
③ 90° ell. Flanged D.I.P. 3" thru 10", Mega Lug or approved equal may be used on underground joints.
④ Pipe spool. Flanged D.I.P. 3" thru 10", Mega Lug or approved equal may be used on underground joints.
⑤ Flanged adapter (when required)
⑥ 3/4" zinc coated threaded rod, (5/8" rod on 3" to 4" sizes), bolt to flanges as shown, typical both sides.
⑦ Test cocks with brass plugs or adaptors with caps installed. (4 required)
⑧ Adjustable metal pipe supports and concrete block supports with 1" adjusting rod and nut on assemblies 4" and larger. Install above grade.

DETAIL NO. 2351	City of Scottsdale Standard Details	APPROVED BY: Scottsdale Standards & Specifications Committee	DOUBLE CHECK VALVE BACKFLOW PREVENTION ASSEMBLY FOR ASSEMBLIES 3 INCHES THRU 10 INCHES	DETAIL NO. 2351

REVISED 5/05/04



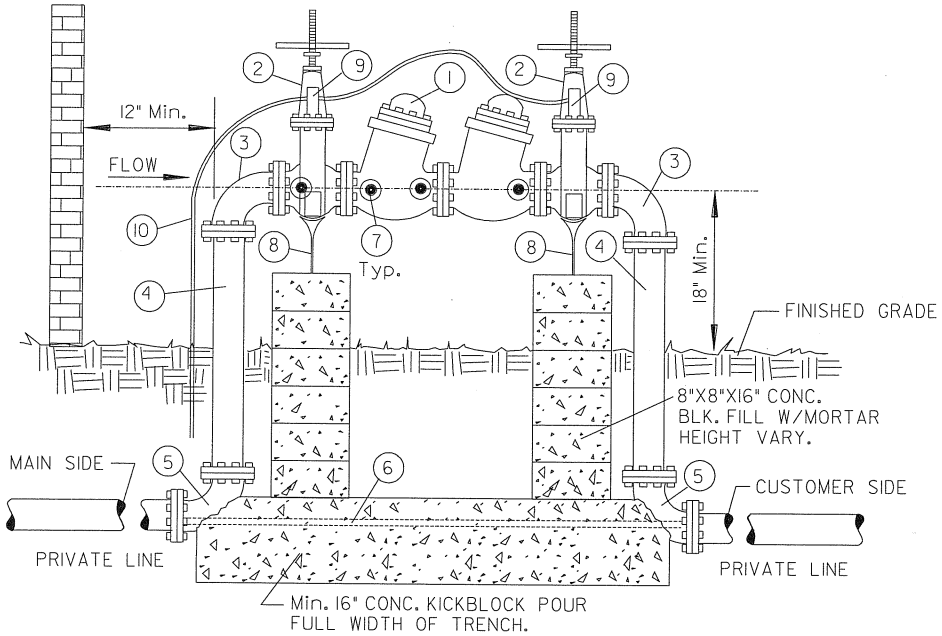
LIST OF MATERIALS

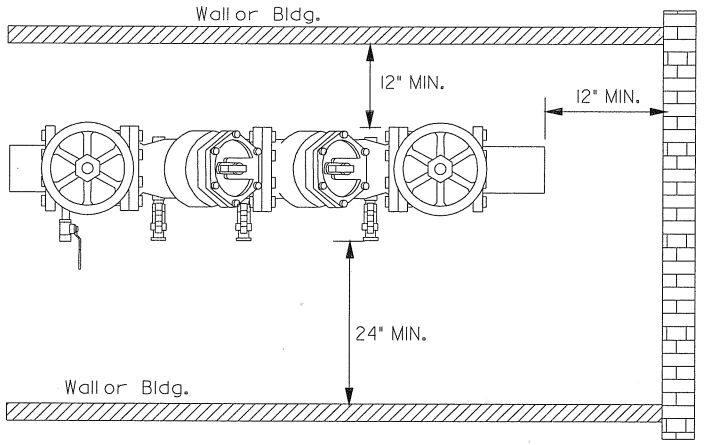
1. Approved "N" shape double check valve backflow prevention assembly.
2. Resilient seated gate valve, O.S. & Y. (fire line connection) N.R.S. (non fire line)
3. Valve setters, fusion epoxy coated ductile iron, plated nuts and bolts. (2 required)
4. Pipe spool. Flanged D.I.P. 3" thru 10", Mega Lug or approved equal may be used on underground joints.
5. Flanged adapter (when required)
6. Test cocks with brass plugs or adaptors with caps installed. (4 required)

GENERAL NOTES

1. Backflow backflow assemblies must be tested by a certified tester that is recognized by the City of Scottsdale.
2. Backflow preventers shall be painted light tan or a color to match the building. Do not paint the name plate or any brass parts on the assembly.
3. For backflow preventers requiring guard posts see Detail 2356. Backflow preventers enclosed by screening shall maintain a 24 inch clearance around the assembly.
4. Finished grade underneath the backflow preventer shall be at 95% compaction.
5. Backflow preventers on fire lines may require tamper switches on the shut off valves. Contact City Of Scottsdale Plan Review, Fire Dept.
6. Call for underground inspection before backfilling trench.
7. Seal Approval from the American Society of Sanitation Engineers. Backflow assemblies installed on fire supression systems must also have approval from Underwriters Laboratories and/or Factory Mutual Research Corporation.

DETAIL NO. 2359	City of Scottsdale Standard Details	APPROVED BY: Scottsdale Standards & Specifications Committee	"N" SHAPED DOUBLE CHECK VALVE BACKFLOW PREVENTION ASSEMBLY FOR ASSEMBLIES 3 INCHES THRU 10 INCHES	DETAIL NO. 2359





LIST OF MATERIALS

1. USC FCCCHR APPROVED DOUBLE CHECK BACKFLOW ASSEMBLY.
2. RESILIENT SEATED VALVE N.R.S. (NON-FIRE) OR OS&Y (FIRELINE).
3. 90 ELL.(FLANGED D.I.P. 3" THRU 10")
4. PIPE SPOOL (FLANGED D.I.P. 3" THRU 10")
5. 90 ELL.(FLANGED BY MJ. D.I.P. 3" THRU 10")
6. 3/4" ZINC COATED THREADED ROD, BOLT TO FLANGES AS SHOWN, BOTH SIDES TYPICAL.
7. TEST COCKS (FOUR REQUIRED).
8. ADJUSTABLE PIPE SUPPORTS (4" AND LARGER)
9. TAMPER SWITCH (FIRELINE ONLY).
10. ELECTRICAL CONDUIT FOR TAMPER SWITCH (FIRELINE ONLY).

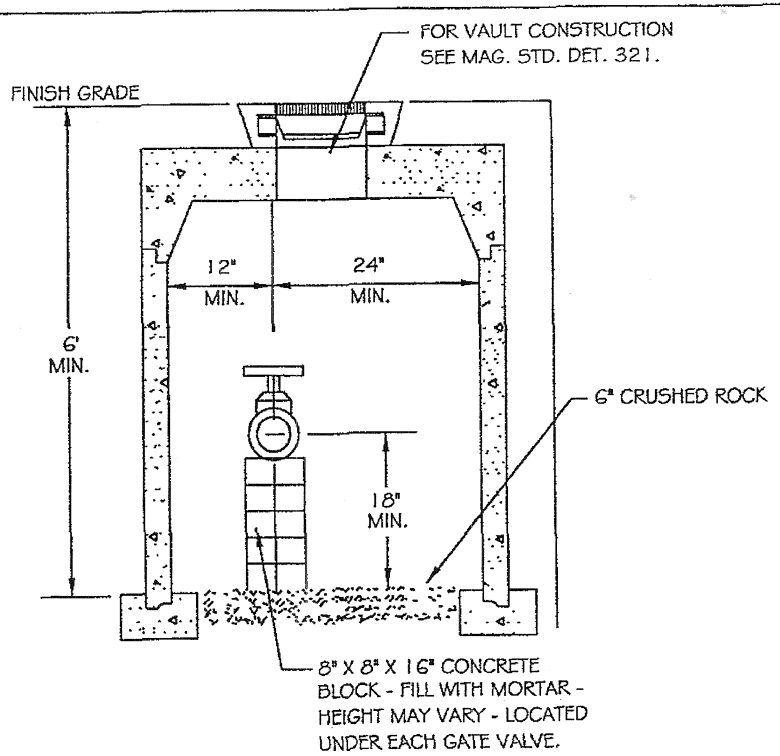
NOTES:

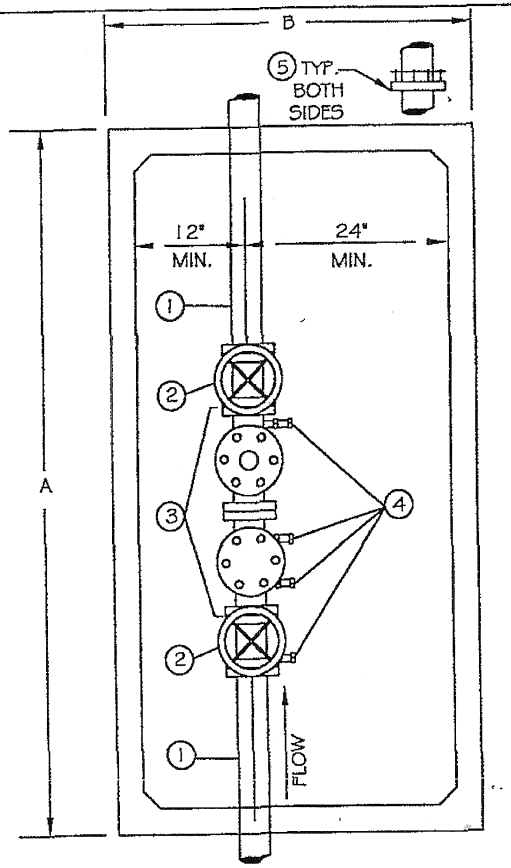
1. FIRE PROTECTION SYSTEMS MAY REQUIRE DOUBLE CHECK DETECTOR VALVE ASSEMBLY (DCDVA) AS A BACKFLOW ASSEMBLY.
2. CONTACT CITY OF TEMPE ENVIRONMENTAL SERVICES SECTION AT 350-8200 FOR LATEST LIST OF USC FCCCHR APPROVED ASSEMBLIES, (ASSEMBLY MUST BE TESTED BEFORE C OF O WILL BE ISSUED)
3. COPPER FITTINGS SHALL BE CONNECTED WITH LEAD - FREE SOLDER.
4. DETAILS FOR SCREENING / GUARD POSTS SHALL BE SUBMITTED TO CITY OF TEMPE ENGINEERING AND DEVELOPMENT SERVICES DEPARTMENT FOR APPROVAL.
5. SCREENING REQUIRED; 3" OR LARGER DIAMETER REQUIRES MASONRY SCREEN WALLS WITH MATERIALS, FINISH, AND COLOR TO MATCH BUILDING.
6. CITY CONTROL VALVE TO BE REQUIRED AT MAIN SIDE.
7. THE CITY WILL NOT PARTICIPATE IN THE COST OF CONSTRUCTION, REPAIR OR UTILITY RELOCATION.
8. CLEARANCE: MINIMUM 12 INCHES AWAY FROM ANY WALL OR STRUCTURE. MINIMUM 24 INCHES AWAY FROM ANY WALL OR STRUCTURE IF TEST COCKS OR MAINTENANCE COVERS FACE WALLS. MINIMUM 12 INCHES ABOVE FINISH GRADE, MAXIMUM 24 INCHES.

ORIGINAL SIGNATURE ON FILE AT THE CITY OF TEMPE

APPROVED: _____ CITY ENGINEER _____ DATE

CITY OF TEMPE PUBLIC WORKS DEPARTMENT	DOUBLE CHECK AND DOUBLE DETECTOR CHECK BACKFLOW PREVENTION ASSEMBLY	DETAIL T-214 REVISED 1998





○ LEGEND:

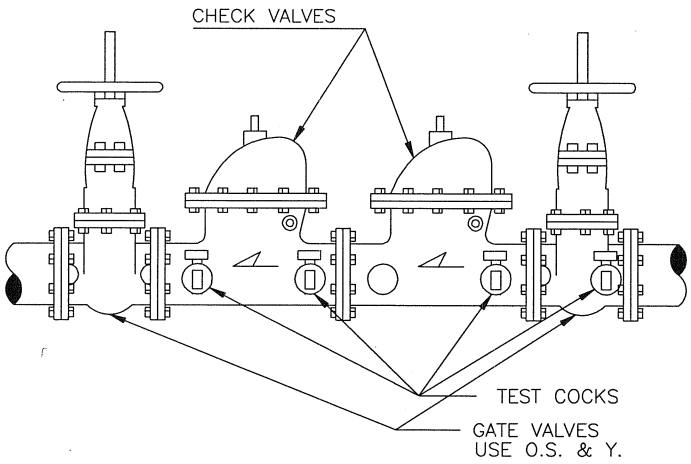
1. PIPE SPOOL (FLANGED D.I.P.)
2. O. S. & Y. GATE VALVE (FIRE LINE CONNECTION).
   N. R. S. GATE VALVE (NON FIRE LINE CONNECTION).
3. APPROVED DOUBLE CHECK ASSEMBLY.
4. TEST COCKS (4 REQUIRED, SHALL BE FITTED WITH BRASS PLUGS).
5. FLANGED ADAPTER (WHEN REQUIRED), ONE ADAPTER MUST BE LOCATED INSIDE VAULT.

NOTE:
VAULT TOP TO BE EQUIPPED WITH A 36" X 36" HINGED AND SPRING LOCKED STEEL TORSION DOOR.

VAULT DIMENSION TABLE

ASSEMBLY SIZE	3" & 4"	6"	8"	10"
(A)	7'-4"	8'-8"	10'-8"	12'-0"
(B)	5'-4"	6'-8"	7'-4"	7'-4"

C-313 **REPLACES** **92**	CITY OF CHANDLER STANDARD DETAIL	**DOUBLE CHECK VALVE BACKFLOW PREVENTION ASSEMBLY VAULT INSTALLATION**	APPROVED: Bryan D. Patterson CITY ENGINEER DATE: 11-19-99	DETAIL NO. **C-313** NTS

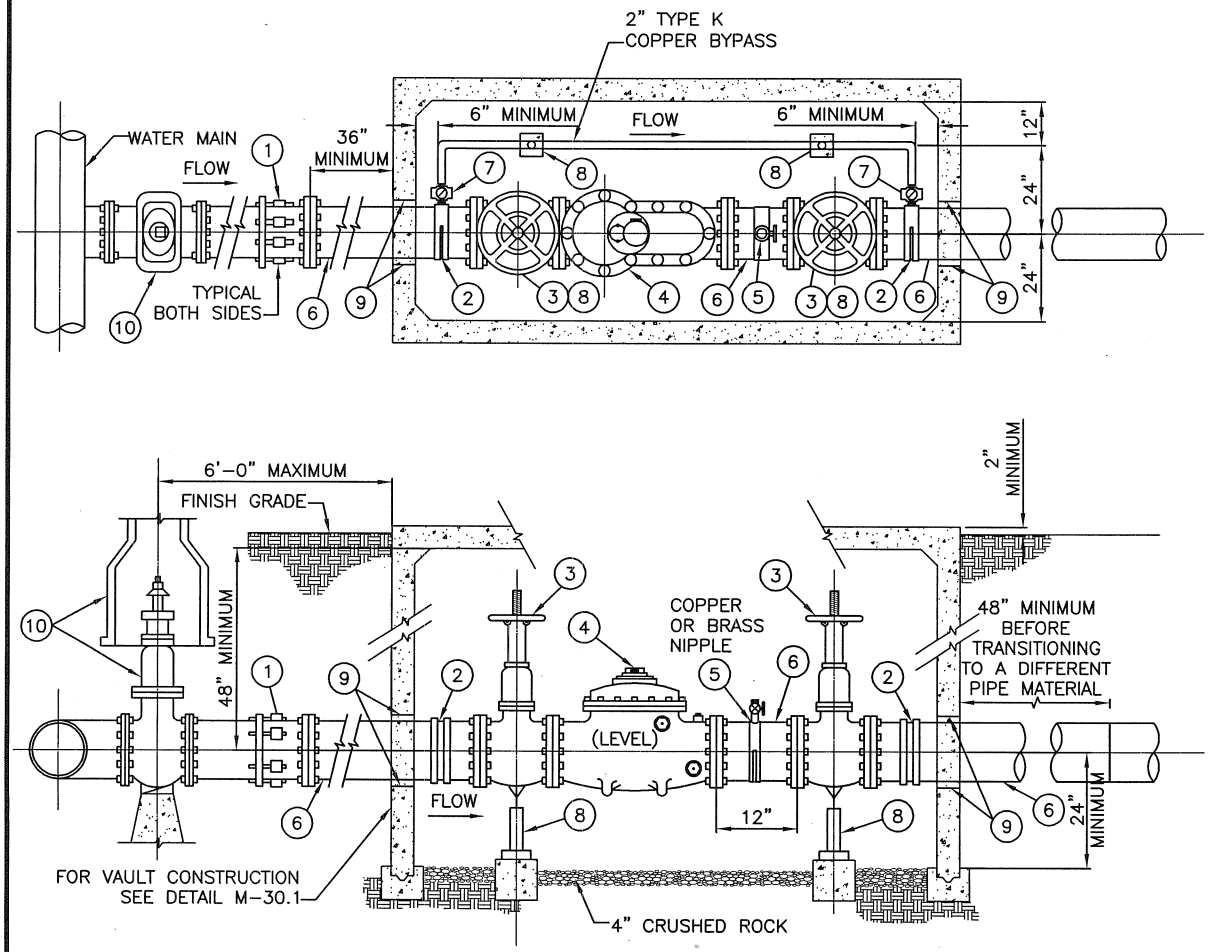


NOTES:

1. THE CHECK VALVE SHALL BE LOADED INTERNALLY SO THAT WHEN THE SUPPLY PRESSURE IS 1 P.S.I., AND THE OUTLET PRESSURE IS ATMOSPHERIC, EACH CHECK VALVE WILL BE DRIP–TIGHT IN THE NORMAL DIRECTION OF FLOW.
2. CLAPPER FACING RINGS SHALL BE MOLDED SYNTHETIC RUBBER (SHORE DUROMETER HARDNESS 35–45).
3. ASSEMBLY IS TO MEET A.W.W.A. STANDARD C 506, BACK FLOW PREVENTION DEVICES.
4. PLACEMENT & LOCATION OF DOUBLE CHECK VALVE ASSEMBLY SHALL BE APPROVED BY WATER & WASTEWATER DEPARTMENT.
5. TEST COCKS SHALL HAVE FEMALE ENDS (I.P. THREADS) ON DISCHARGE SIDE.

NOMINAL SIZE OF ASSEMBLY	MINIMUM SIZE TEST COCK
LESS THAN OR EQUAL TO 2"	1/4"
2 1/2" – 4"	1/2"
6" & OVER	3/4"

DETAIL NO.				
P1396	City of Phoenix STANDARD DETAIL	DOUBLE CHECK VALVE ASSEMBLY	APPROVED Kenny W Hann CITY ENGINEER — 07-09-92 DATE	DETAIL NO. P1396



LIST OF MATERIALS

1. ADAPTER, FLANGED TO MECHANICAL JOINT FOR A.C.P.
2. DOUBLE STRAP, ALL BRONZE SERVICE SADDLE
3. O.S.& Y. RISING STEM GATE VALVE, FLANGED WITH HAND WHEEL, OPEN LEFT, APPROVED RESILIENT WEDGE GATE VALVES INCLUDE MUELLER, AMERICAN DARLING, AND WATEROUS.
4. COMPOUND WATER METER: ROCKWELL OR HERSEY.
5. DOUBLE STRAP BRONZE SADDLE, COPPER OR BRASS NIPPLE AND GATE VALVE.
   2" FOR 4" METER,
   3" FOR 6" METER.
6. C.I.P. SPOOL, FLANGED BOTH ENDS.
7. 2" CURB STOP (BALL TYPE) WITH LOCKABLE DEVICE.
8. ADJUSTABLE METAL PIPE SUPPORTS ON 6"X6"X6" CONCRETE BASE. (4) REQUIRED (ONE UNDER EACH VALVE AND 2 UNDER THE BY PASS).
9. GROUT WALLS OF VAULT AT EACH PIPE OPENING PER DETAIL M-30.1.
10. GATE VALVE, VALVE BOX, AND COVER PER M.A.G. STANDARD DETAIL 301-1, TYPE "C".

NOTE:
ALL METERS SHALL BE PURCHASED FROM THE CITY OF MESA.

4" & 6" COMPOUND WATER METER (WITHOUT ON-SITE FIRE HYDRANTS)

DETAIL NO. M-28.1

REV. 01/30/03

TYPICAL WITH HERSEY AND ROCKWELL

1. THE COMPOUND METER IS DESIGNED TO REGISTER LOW FLOWS AND HIGH FLOWS SEPARATELY AND TOTALLED TOGETHER TO REFLECT CONSUMPTION. THESE METERS ALSO ARE DESIGNED TO BE SERVICED "IN THE LINE".

2. SOME TYPICAL APPLICATIONS INCLUDE HOTELS, MOTELS, INSTITUTIONS, FACTORIES, SCHOOLS, APARTMENT HOUSES, OFFICE BUILDINGS, ETC. WHERE THEIR FIRE PROTECTION IS PROVIDED BY A SEPARATE FACILITY SUCH AS FIRE LINE DETECTORS OR DIRECT LINE TO THE PROPERTY BEING SERVED. THESE METERS HAVE THE CAPABILITY OF REGISTERING ACCURATELY FROM ½ GALLON PER MINUTE TO MAXIMUM FLOW RATE AS PER SIZE.

3. WHERE ONE METER IS BEING USED, A SMALL BYPASS LINE WILL BE PROVIDED. THIS WILL ASSURE WATER SERVICE TO THE CUSTOMER WHILE SERVICING IS BEING RENDERED. WHEN TWO SERVICES ARE USED AND THEY ARE LOOPED, THEN THE SHUT DOWN OF ONE METER AT A TIME DOES NOT AFFECT THE CUSTOMER.

4. FLOW RATES PER SIZE ARE NOTED AS FOLLOWS:
   METER LINE SIZE –
   A. MINIMUM FLOW REGISTRATION
   B. RECOMMENDED MAXIMUM CONSTANT USE FLOW
   C. MAXIMUM FLOW CAPACITIES

COMPOUND METERS		
4" – A= 1/4 G.P.M.	B= 350 G.P.M.	C= 500 G.P.M. (BYPASS UNMETERED SINGLE FEED)
6" – A= 1/2 G.P.M.	B= 700 G.P.M.	C= 1000 G.P.M. (BYPASS UNMETERED SINGLE FEED)

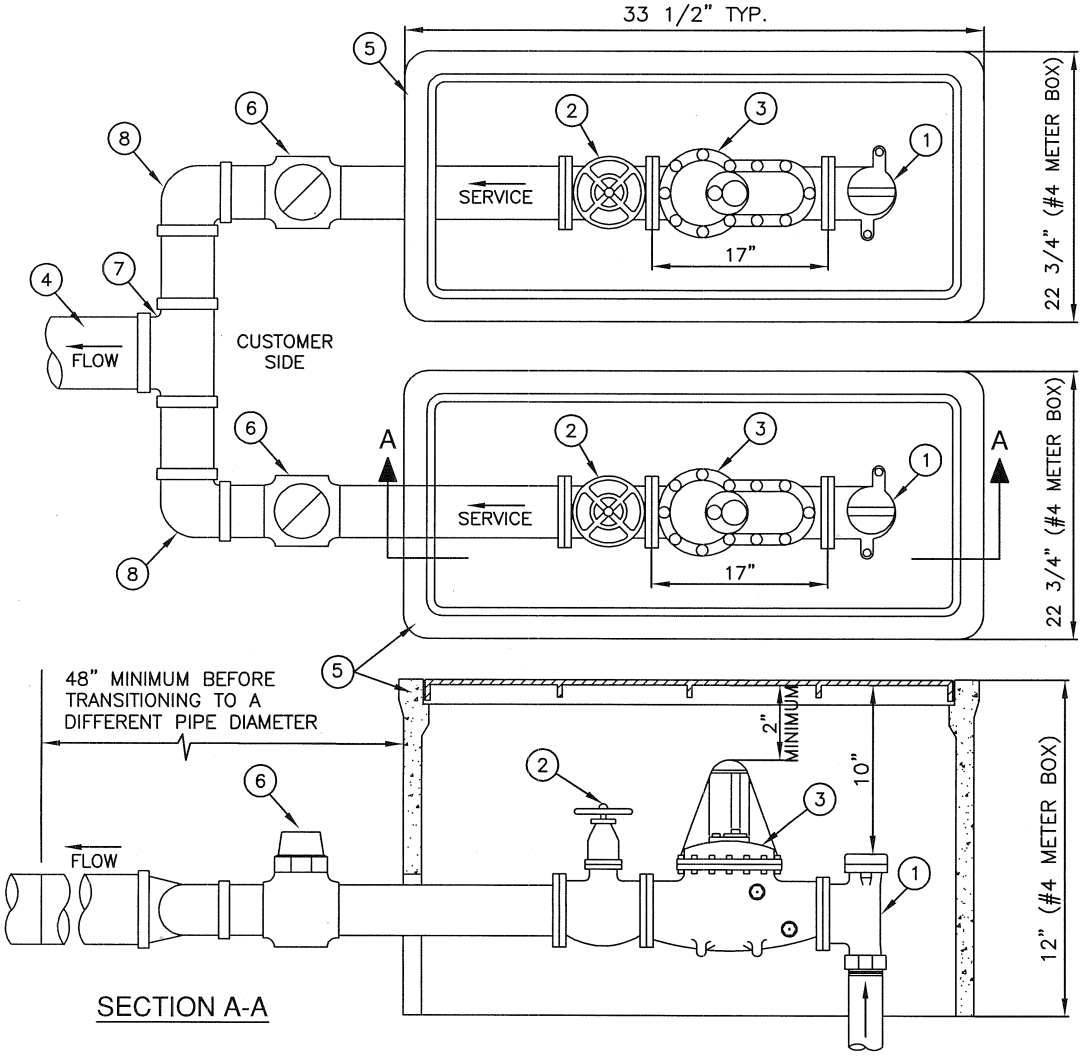
5. TYPE "K" COPPER (HARD) MAY BE SUBSTITUTED FOR C.I.P. FITTINGS AND PIPE FOR SIZES UP TO 4". ALL COPPER PIPE JOINTS SHALL BE SOLDERED. THE SOLDER ALLOY SHALL COMPLY WITH ASTM B 32 HAVING A SILVER CONTENT OF NOT LESS THAN 3.4% INTENDED FOR JOINING COPPER PIPES FOR POTABLE WATER SYSTEMS (GRADES SN 94, SN 95, OR SN 96). THE FLUX SHALL BE TYPE OA FOR GENERAL SOLDERING ON COPPER.

NOTE: ALL METERS SHALL BE PURCHASED FROM THE CITY OF MESA.

NOTES FOR 4" & 6" COMPOUND WATER METER
(WITHOUT ON–SITE FIRE HYDRANTS)

DETAIL NO. M–28.2

REV. 01/13/03



LIST OF MATERIALS

1. 2" ANGLE METER VALVE (LOCKING TYPE) – CITY SIDE OF INLET SERVICE LINE. (SEE DETAIL M–49.2).
2. 2" GATE VALVE – CUSTOMER SIDE OF SERVICE – FLANGED VALVE CAN BE ELIMINATED IF BACKFLOW DEVICE IS INSTALLED DOWNSTREAM OF METER.
3. CITY OF MESA WILL PROVIDE AND INSTALL WATER METER. SEE NOTE 3 BELOW.
4. TYPE K COPPER. (SEE M–49.2)
5. CONCRETE WATER METER BOX (#4) WITH CAST IRON COVER PER MAG STD. DETAIL 320 OR STEEL LID PER DETAIL M–49.4.
6. 2" CURB STOP WITH VALVE BOX AND COVER, C.O.M. APPROVED PER M–49.4.
7. 2"X3"X2" COPPER TEE SOLDERED
8. 2" COPPER 90° BEND SOLDERED

NOTES

1 TOP OF WATER METER SHALL BE A MINIMUM OF 2" BELOW UNDERSIDE OF CAST IRON COVER.

2 METERS SHALL NOT BE INSTALLED IN DRIVEWAYS OR IN A LOCATION INACCESSIBLE FOR MAINTENANCE.

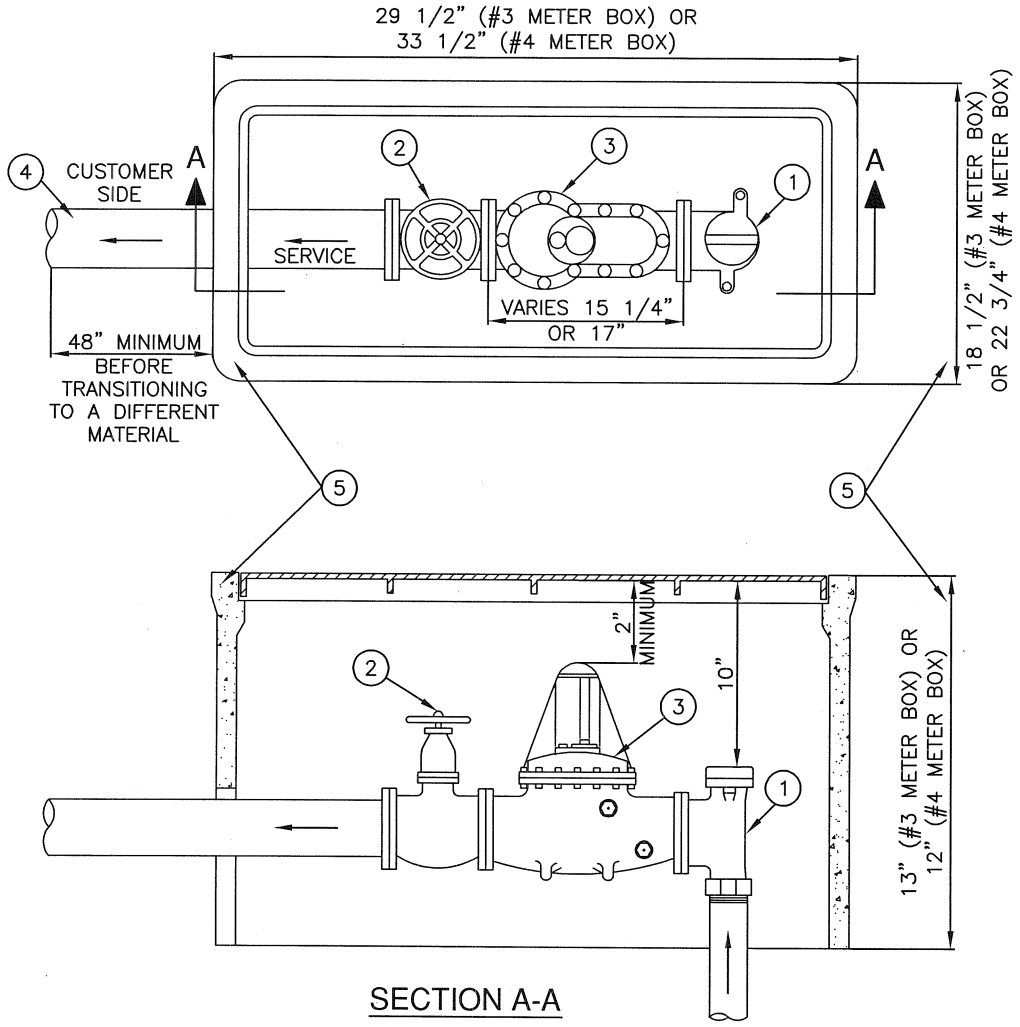
3 ALL METERS SHALL BE PURCHASED FROM THE CITY OF MESA.

4 SEE DETAIL M–49.1 THROUGH M–49.4 FOR INSTALLATION.

PARALLEL 2" WATER METERS FOR 3" WATER SERVICES

DETAIL NO. M–28.3

REV. 01/24/05



LIST OF MATERIALS

1. 1 1/2" OR 2" ANGLE METER VALVE (LOCKING TYPE) – CITY SIDE OF INLET SERVICE LINE. (SEE DETAIL M–49.2)
2. 1 1/2" OR 2" GATE VALVE – CUSTOMER SIDE OF SERVICE – FLANGED. VALVE CAN BE ELIMINATED IF BACKFLOW DEVICE IS INSTALLED DOWNSTREAM OF METER.
3. CITY OF MESA WILL PROVIDE AND INSTALL WATER METER. SEE NOTE 3 BELOW.
4. TYPE K COPPER (SEE M–49.2)
5. CONCRETE WATER METER BOX WITH CAST IRON COVER PER MAG STD DETAIL 320 OR STEEL LID PER DETAIL M–49.4.

WATER METER SIZE	METER BOX NUMBER
1 1/2"	#3
2"	#4

NOTES

1 TOP OF WATER METER SHALL BE A MINIMUM OF 2" BELOW UNDERSIDE OF CAST IRON COVER.

2 METERS SHALL NOT BE INSTALLED IN DRIVEWAYS OR IN A LOCATION INACCESSIBLE FOR MAINTENANCE.

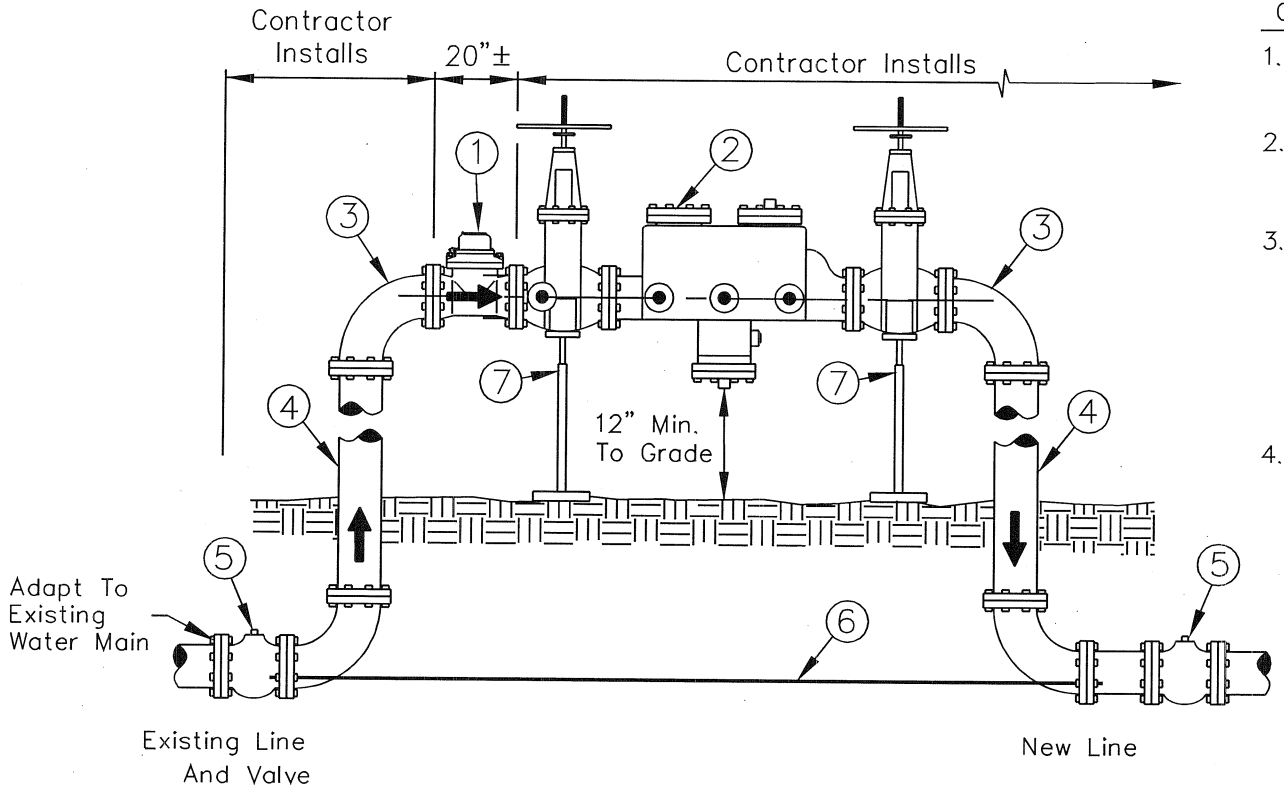
3 ALL METERS SHALL BE PURCHASED FROM THE CITY OF MESA.

4 SEE DETAIL M–49.1 THROUGH M–49.4 FOR INSTALLATION.

1 1/2" & 2" APROVED WATER METERS

DETAIL NO. M–29

REV. 07/01/02



GENERAL NOTES

1. Contractor to supply and install above ground piping and fittings to accomodate 3" meter, backflow preventer and 2 – 90° ells.
2. Contractor to remove piping and fittings after acceptance of new water main and complete connection as per MAG Standards.
3. Approvals for backflow assemblies must have Seal Approval from the American Society of Sanitation Engineers. Backflow assemblies installed on fire supression systems must also have approval from Underwriters Laboratories and/or Factory Mutual Research Corporation.
4. Backflow backflow assemblies must be tested by a certified tester that is recognized by the City of Scottsdale.

LIST OF MATERIALS

① 3" Turbine Construction Meter With 3" Flanges, Supplied By City.

② 3" Approved Reduced Pressure Principle Backflow Prevention Assembly, Supplied By Contractor.

③ 3" Flanged Ductile Iron 90° Ell, Supplied By Contractor.

④ 3" Ductile Iron Spool.

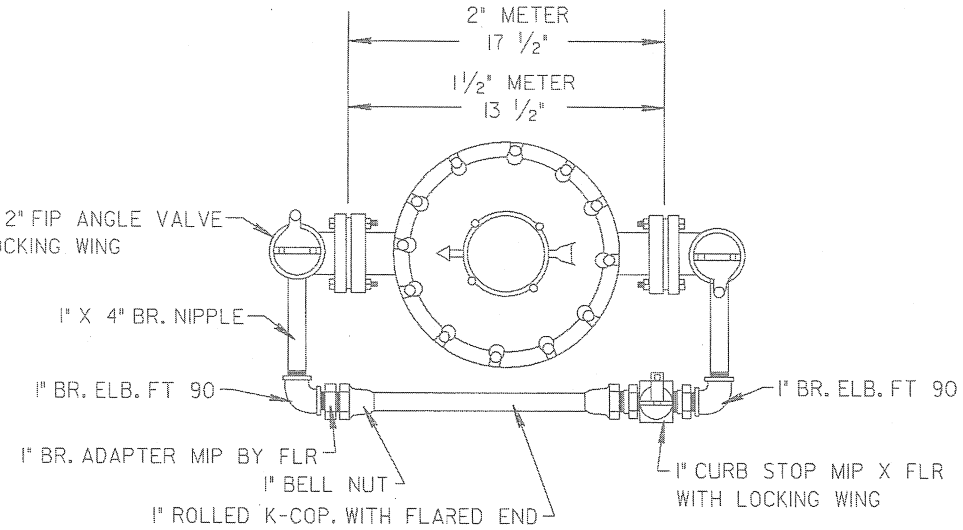
⑤ Line valves shall be within a 20' maximum distance upstream and downstream of flow meter or as approved by COS, and shall remain in-place after removal of temporary meter.

⑥ 3/4"ø zinc coated threaded rod.

⑦ Adjustable Metal Pipe Support (Required).

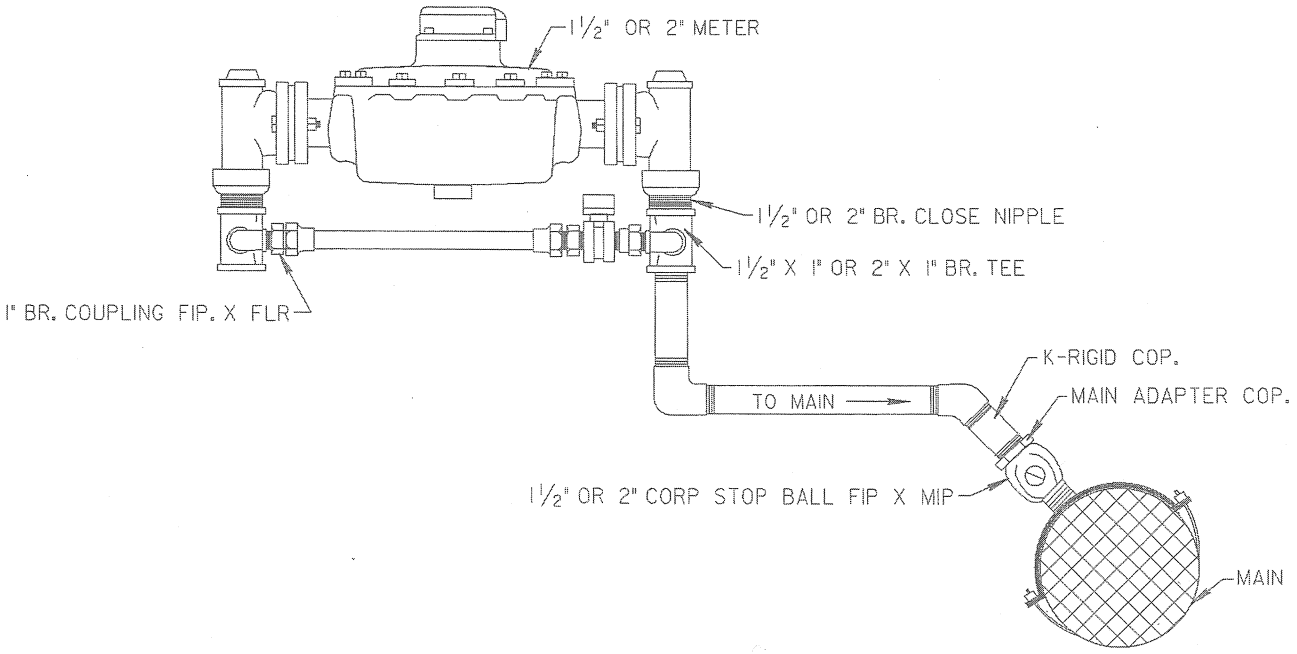
REVISED 3/08/05

DETAIL NO. 2346	City of Scottsdale Standard Details	APPROVED BY: Scottsdale Standards & Specifications Committee	TEMPORARY CONSTRUCTION METER	DETAIL NO. 2346



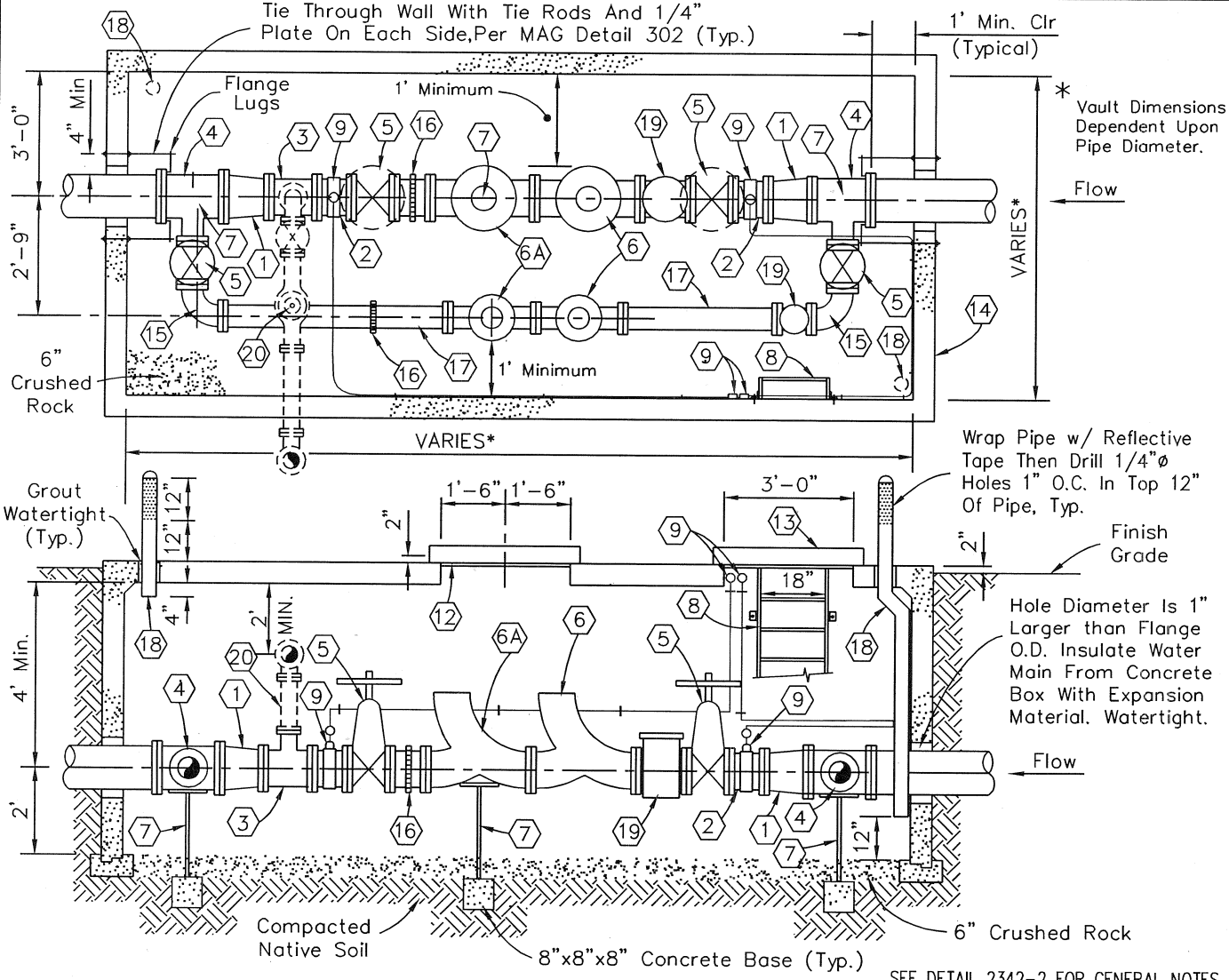
NOTES:

- 1 1/2" METER USE NO. 3 BOX PER STANDARD MAG DETAIL NO. 320
- 2" METER USE NO. 4 BOX PER STANDARD MAG DETAIL NO. 320
- FITTINGS SHALL BE 1 1/2" OR 2" DEPENDING ON METER SIZE
- ANGLE VALVE MUST BE 5" BELOW FINISH GRADE
- NOTES ON DETAIL NO. 212 APPLY TO THIS DETAIL.



APPROVED: _____ _____
DEPUTY PUBLIC WORKS MANAGER
CITY ENGINEER — DATE

CITY OF TEMPE PUBLIC WORKS DEPARTMENT	1 1/2" & 2" METER INSTALLATION	DETAIL T-212-A 2005



NOTES

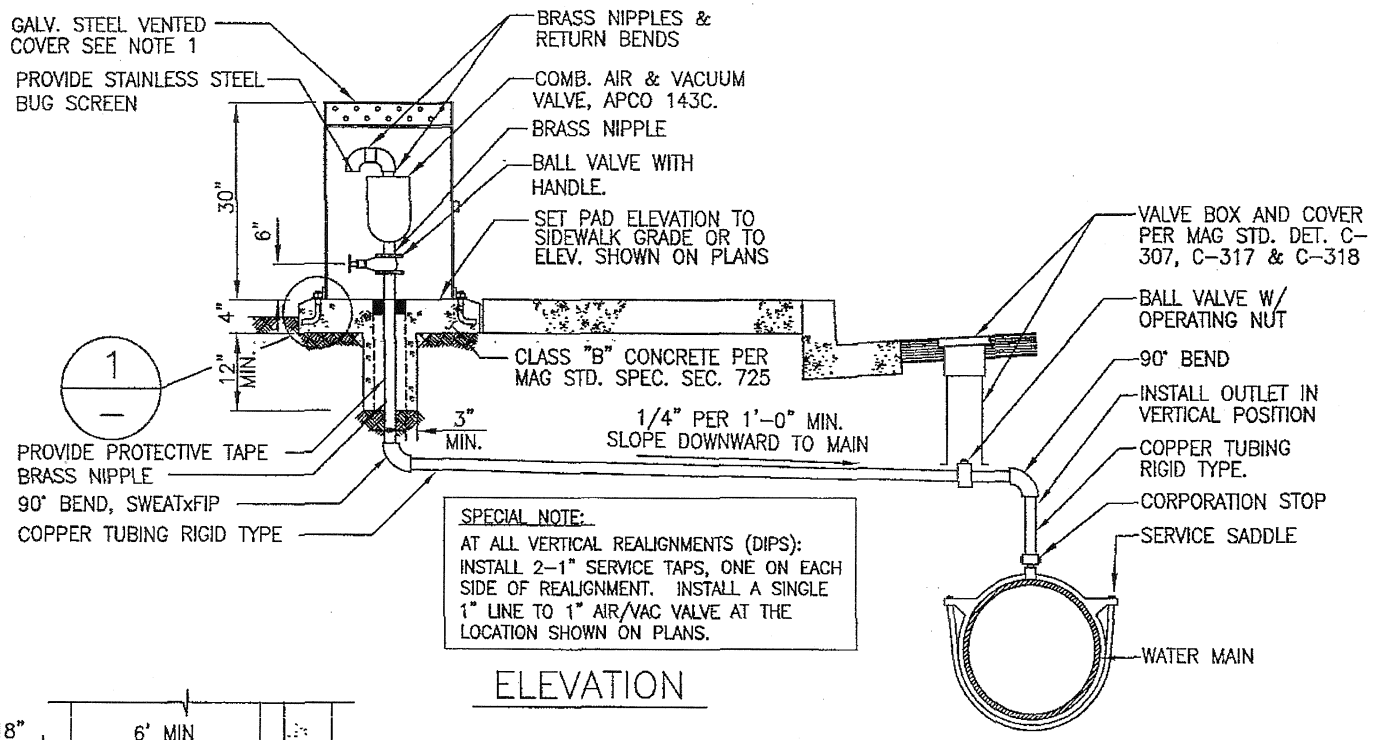
1. D.I.P. Flg Concentric Reducer
2. D.I.P. Flg x Flg Spool Piece
3. D.I.P. Flg x Flg Tee. Install Only When Detail 2342-2 Is Used.
4. D.I.P. Flg Reducing Tee
5. Flg NRS Resilient Wedge Gate Valve, Inside Epoxy Coated, Low Zinc Stem w/ Wheel Handle
6. Flg PRV Bermad Model 723-20-V-I-U w/ Valve Position Indicator & Low Flow V-Port Plug And Must Have Stainless Steel Pilot Tubing, Or Approved Equal.
6A. Flg PRV Bermad Model 723-20-V-I-U w/ Valve Or Approved Equal Will Be Installed When Pressure Differential Is 100 psi Or Greater.
7. 4" Dia Galv Adjustable Pipe Supports w/ 1" Adj. Rod And Nut On 8"x 8"x 8" Concrete Base.
8. Galv Access Ladder Bolted To Wall, 6" Stand Off.
9. Saddle With 1" Corp., 3/8" Brass Reducer, 3/8" 3/8" Brass Tee w/ Oil Filled 0-200 Pressure Gauge. Install 3/8" Stainless Tubing Strapped To Wall As Shown w/ Oil Filled Gauges Mounted At Access Door. Gages To Be Readable From Outside Vault.
12. For 8" Valves Or Larger Install Utility Vault Raised/ Adjustable Access Door, Model 3636, Or Approved Equal, Centered Over Main Valves For Removal.
13. Utility Vault Raised/Adjustable Steel Access Door For Inspection, Model 3636 Or Approved Equal. Place In Corner With Ladder.
14. Precast Concrete Water Utility Vault, Per MAG Std Det 321 & 345-1, Inside Dimensions Vary Depending On Pipe Size.
15. D.I.P. Flg 90° Elbow
16. Victaulic Coupling Or Approved Equal w/ All Thread Tie Rods.
17. D.I.P. Flg Pipe Spool
18. 4" Galv. Steel Vent Pipe With Cap. Strap Pipe To Wall. Install Vents In Unpaved Areas Only.
19. Basket Type Strainer
20. 4" Pressure Relief Bermad Model 730-I-U w/ Valve Position Indicator Or Approved Equal Required When Pressure Differential Meets Or Exceeds 100 PSI. See Detail 2342-2.

* Engineer to note direction of flow and pressure setting on the plans.

SEE DETAIL 2342-2 FOR GENERAL NOTES

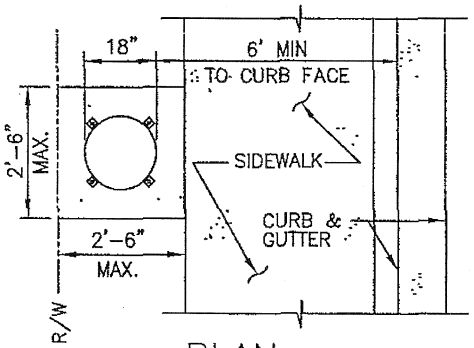
REVISED 2/27/01

DETAIL NO. 2342-1	City of Scottsdale Standard Details	APPROVED BY: Scottsdale Standards & Specifications Committee	PRESSURE REDUCING VALVE	DETAIL NO. 2342-1



SPECIAL NOTE:
AT ALL VERTICAL REALIGNMENTS (DIPS): INSTALL 2-1" SERVICE TAPS, ONE ON EACH SIDE OF REALIGNMENT. INSTALL A SINGLE 1" LINE TO 1" AIR/VAC VALVE AT THE LOCATION SHOWN ON PLANS.

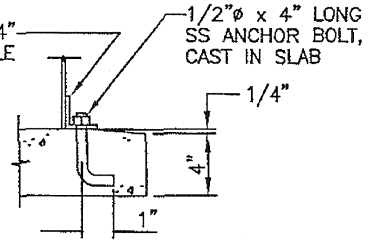
ELEVATION



PLAN
IMPROVED AREA

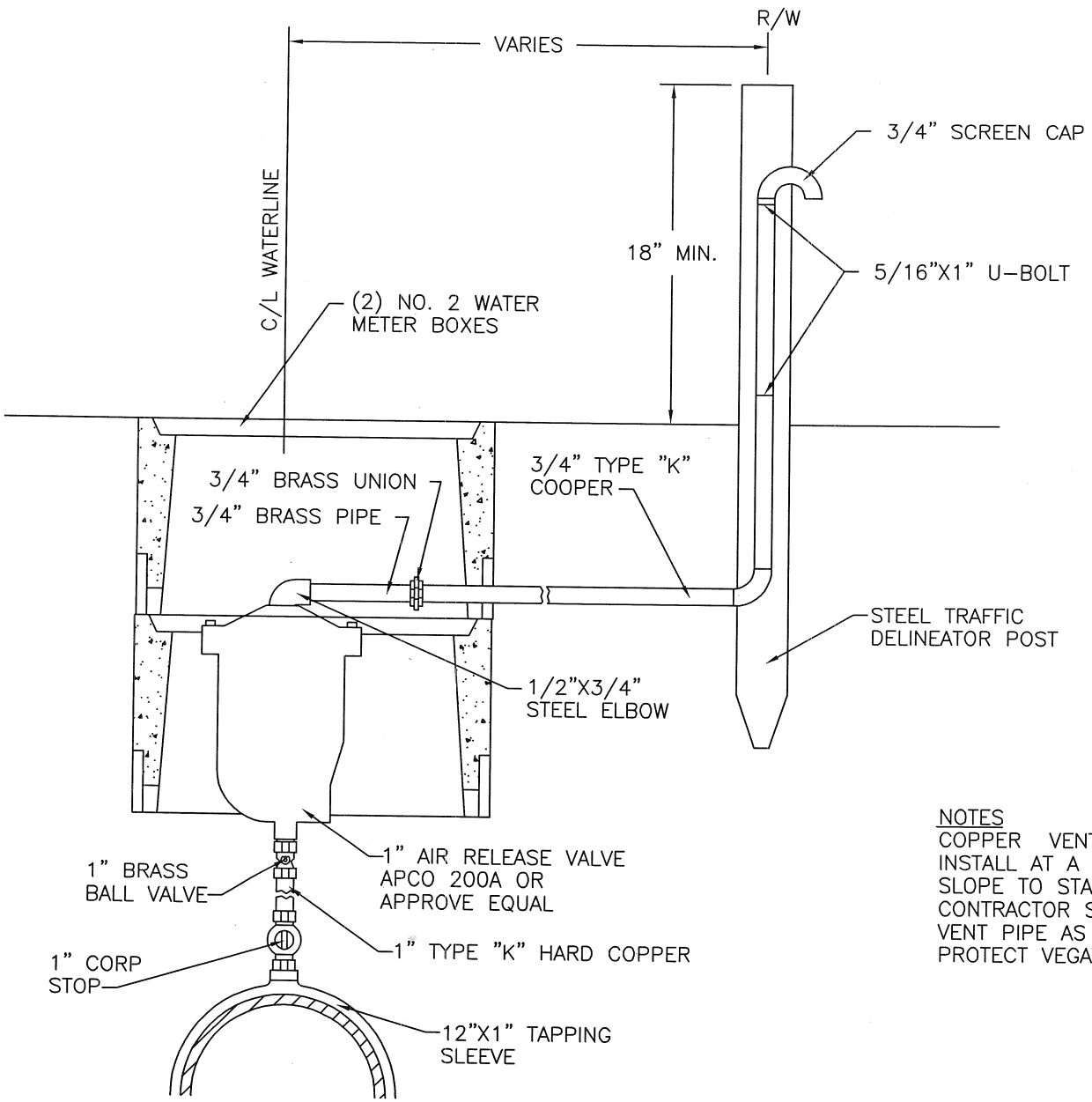
NOTES

1. PAINT COVER WITH TNEMEC EDUROSHIELD PER MANUFACTURERS INSTRUCTIONS. COLOR SHALL BE DESERT TAN. 12 MILS DFT.
2. IN UNIMPROVED AREAS, PLACEMENT OF THE AIR/VAC VALVE IS TO BE 10' FROM THE EDGE OF PAVMENT. SET PAD ELEVATION 2" ABOVE ADJACENT GROUND.
3. FOR RECLAIMED WATER APPLICATIONS THE WORDS: "CAUTION: RECLAIMED WATER DO NOT DRINK" SHALL BE STENCILED WITH 3/4" LETTER IN PURPLE (PANTONE 512). ON A WHITE BACKGROUND.



DETAIL 1

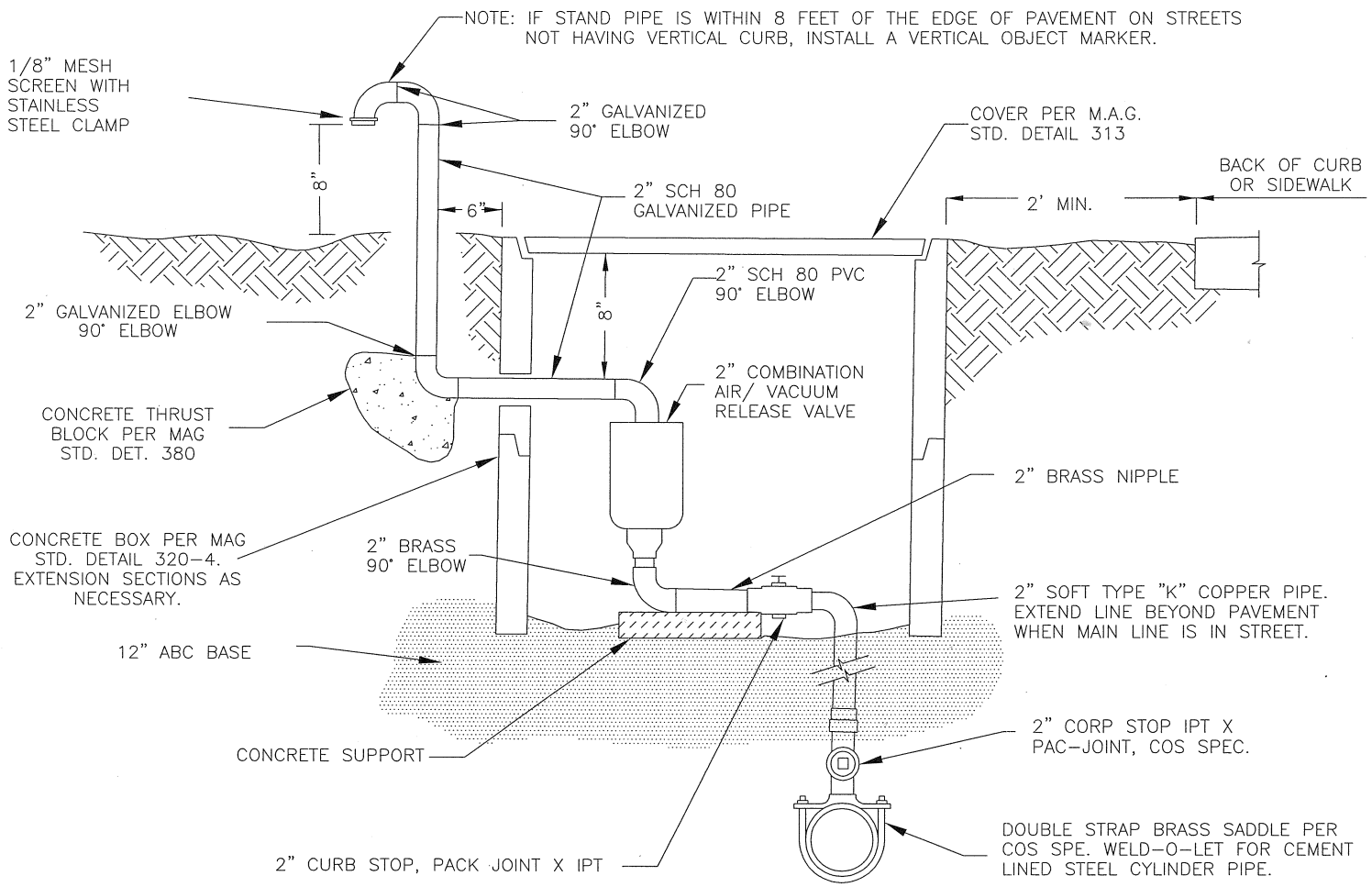
DETAIL NO.				
C-319 NTS	CITY OF CHANDLER STANDARD DETAIL	**2"COMBINATION AIR/VACUUM VALVE ASSEMBLY**	APPROVED: Elizabeth McKinney CITY ENGINEER DATE: January 11, 2002	DETAIL NO **C-319** NTS



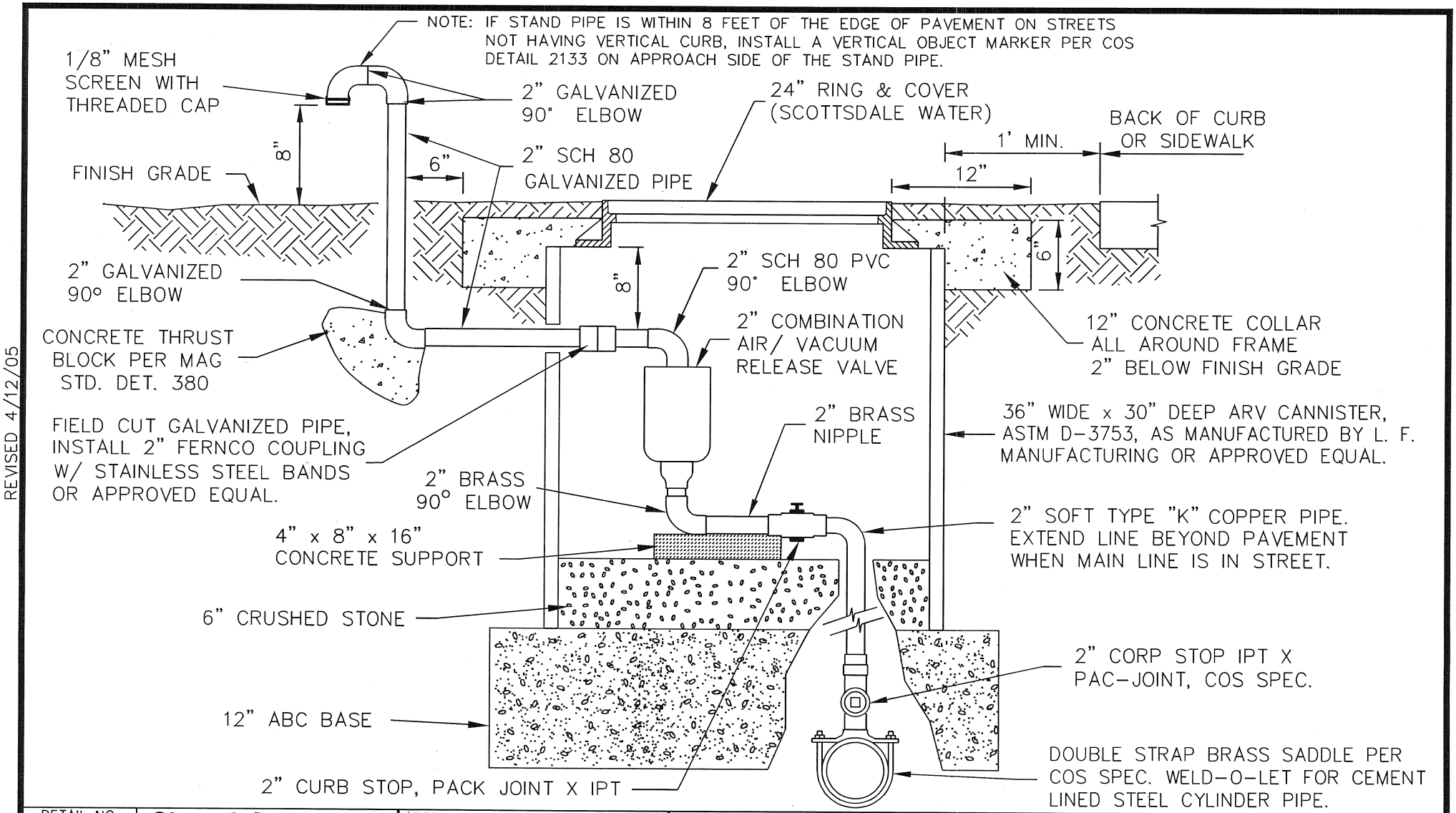
NOTES
COPPER VENT PIPE TO BE INSTALL AT A POSITIVE SLOPE TO STAND PIPE. CONTRACTOR SHALL LOCATE VENT PIPE AS NEEDED TO PROTECT VEGATION.

AIR RELEASE VALVE DETAIL

DETAIL NO. 83A	TOWN OF GILBERT STANDARD DETAIL	AIR RELEASE VALVE	REVISED 1/2005	DETAIL NO. 83A

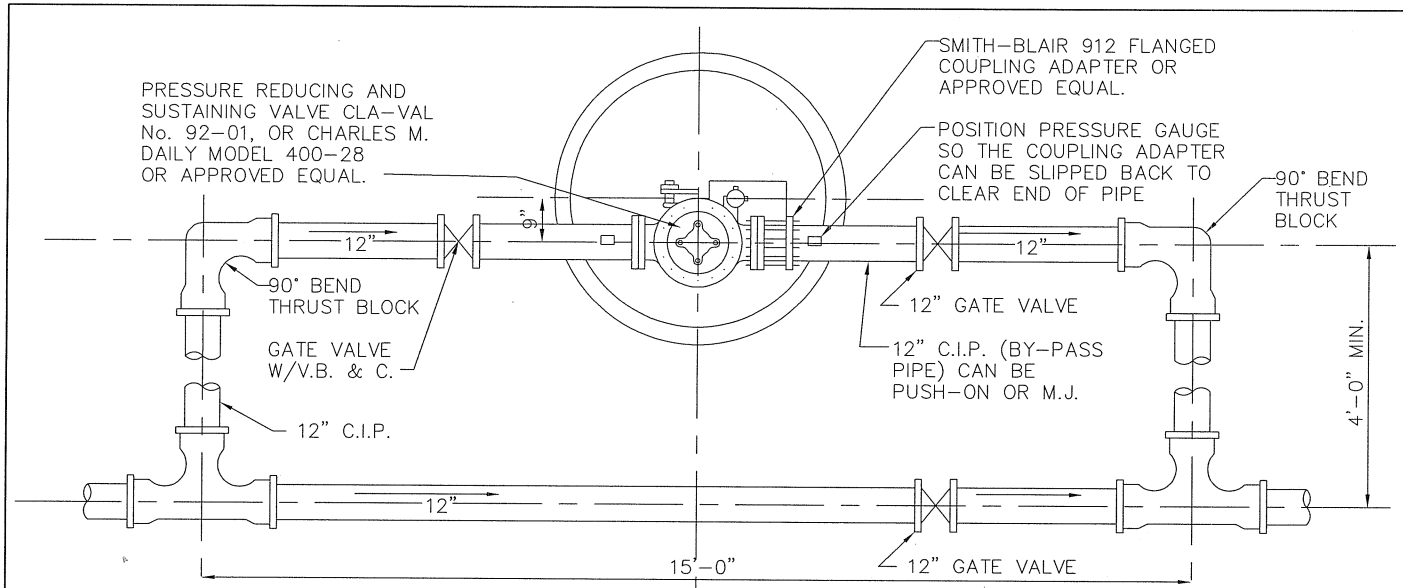


DETAIL NO. G-3328	CITY OF GOODYEAR STANDARD DETAIL	APPROVED BY: Goodyear Standards and Policies Committee 7/97	2" AIR/VACUUM RELEASE VALVE	DETAIL NO. G-3328

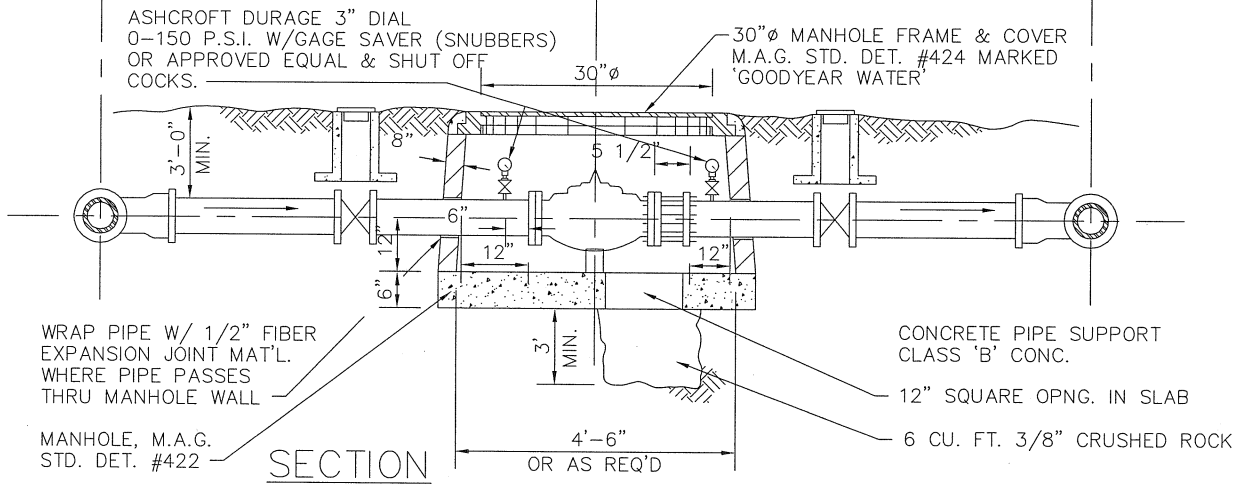


REVISED 4/12/05

DETAIL NO. 2348	City of Scottsdale Standard Details	APPROVED BY: Scottsdale Standards & Specifications Committee	2" AIR/VACUUM RELEASE VALVE	DETAIL NO. 2348



PLAN VIEW

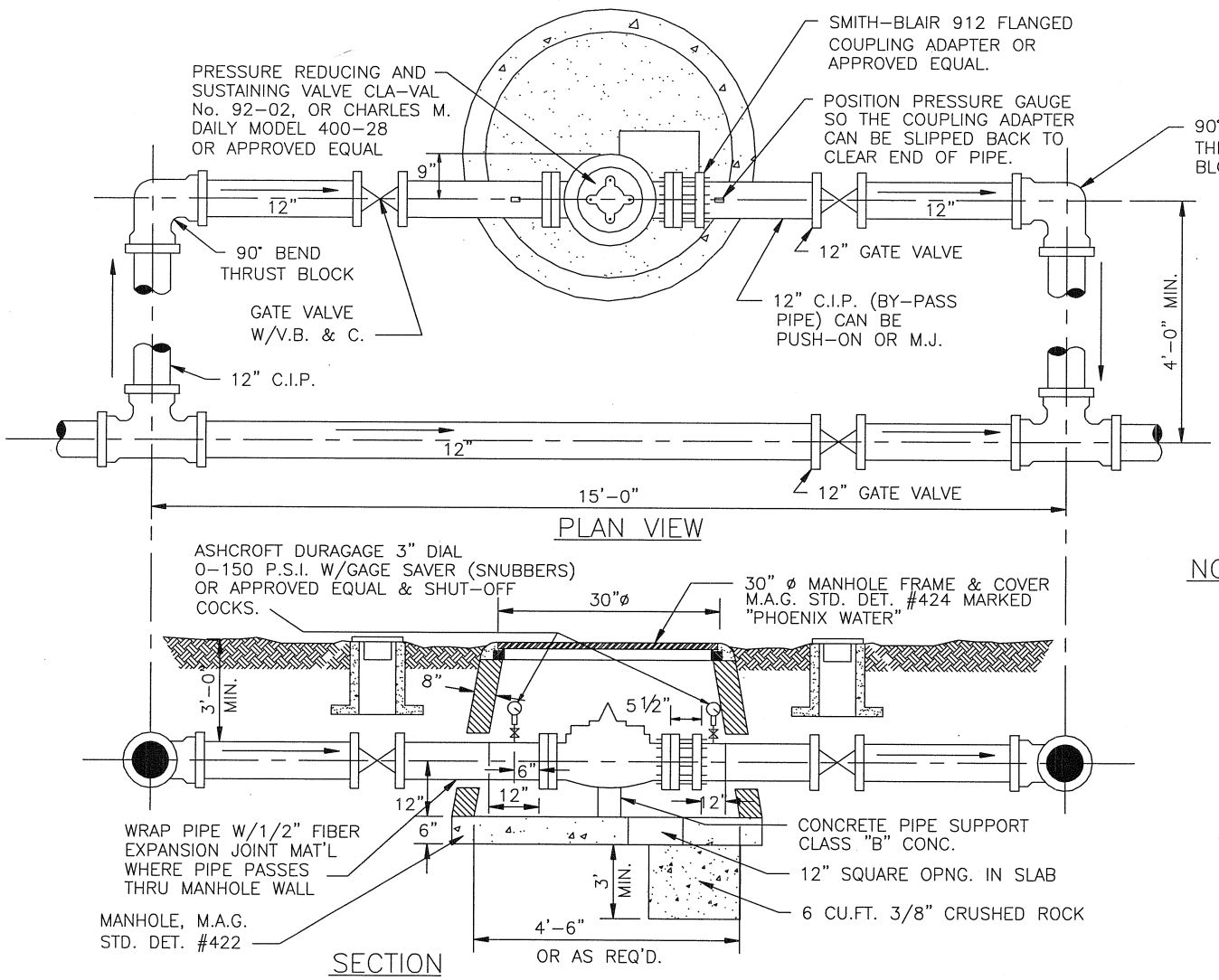


SECTION

GENERAL NOTES

1. VALVE SHALL BE IRON BODY, CLASS 125, FLANGED ENDS, HYDRAULICALLY OPERATED, PILOT CONTROLLED, DIAPHRAGM TYPE, GLOVE PATTERNED VALVE. IT SHALL BE TREATED AT 175 P.S.I. MINIMUM PRESSURE.
2. MANUFACTURERS NAME, YEAR OF MANU-FACTOR, SIZE OF VALVE AND GUARANTEED WORKING PRESSURE SHALL BE ENGRAVED ON THE VALVE OR AN A NAMEPLATE ATTACHED TO THE VALVE.
3. VALVE SHALL BE OPERATED BY A CONTROL SYSTEM WHICH INCLUDES PILOT CONTROLS FOR PRESSURE REDUCING AND FOR SUSTAINING. BOTH PILOT CONTROLS SHALL BE FIELD ADJUSTABLE FOR ANY PRESSURE IN THE RANGE OF 50 TO 120 P.S.I.

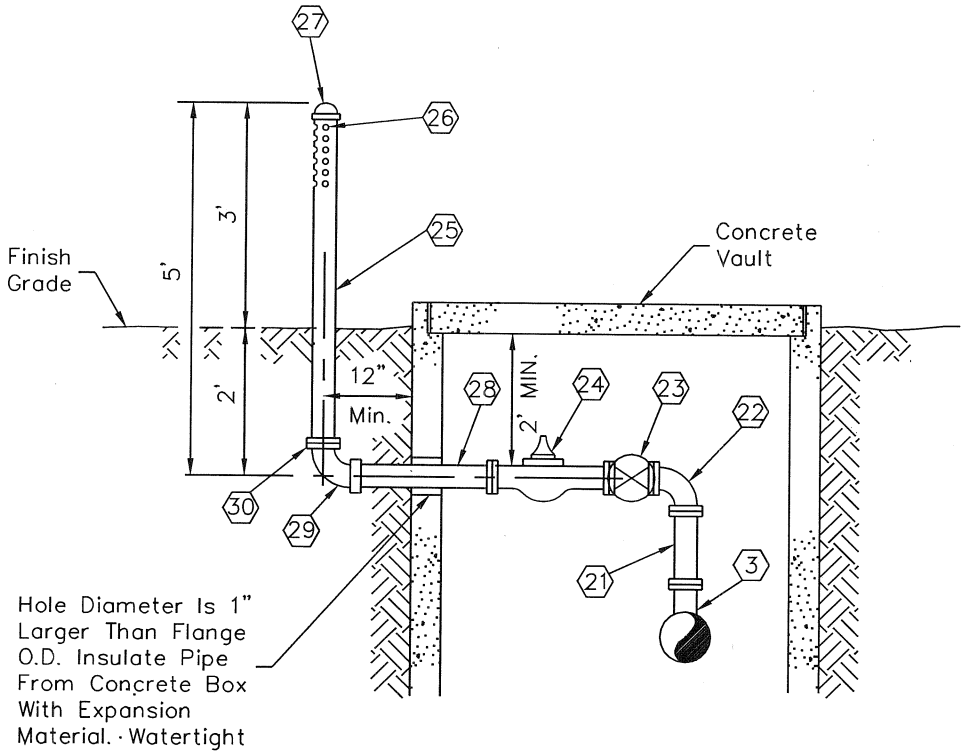
DETAIL NO. G-3323	CITY OF GOODYEAR STANDARD DETAIL	APPROVED BY: Goodyear Standards and Policies Committee 7/97	PRESSURE REDUCING & SUSTAINING VALVE	DETAIL NO. G-3323



NOTES:

1. VALVE SHALL BE IRON BODY, CLASS 125, FLANGED ENDS, HYDRAULICALLY OPERATED, PILOT CONTROLLED, DIAPHRAGM TYPE, GLOVE PATTERNED VALVE. IT SHALL BE TREATED AT 175 P.S.I. MINIMUM PRESSURE.
2. MANUFACTURERS NAME, YEAR OF MANUFACTURE, SIZE OF VALVE AND GUARANTEED WORKING PRESSURE SHALL BE ENGRAVED ON THE VALVE OR ON A NAMEPLATE ATTACHED TO THE VALVE.
3. VALVE SHALL BE OPERATED BY A CONTROL SYSTEM WHICH INCLUDES PILOT CONTROLS FOR PRESSURE REDUCING AND FOR PRESSURE SUBSTAINING. BOTH PILOT CONTROLS SHALL BE FIELD ADJUSTABLE FOR ANY PRESSURE IN THE RANGE OF 50-120 P.S.I.

DETAIL NO.				DETAIL NO.
P1394	City of Phoenix STANDARD DETAIL	PRESSURE REDUCING & SUSTAINING VALVE	APPROVED Kenny W Hann CITY ENGINEER — 07-09-92 DATE	P1394



PRESSURE RELIEF OUTLET ASSEMBLY DETAIL

SEE NOTE ⟨20⟩ DETAIL 2342-1

NOTES

⟨3⟩ Flg x Flg Tee, See Detail 2342-1

⟨21⟩ 4" Flg Connecting Piece

⟨22⟩ 4" DIP Flg x Flg 90° Elbow, w/ Restrained Joints (Meg A Lug Or Approved Equal)

⟨23⟩ 4" Flg NRS Resilient Wedge Gate Valve, Inside Epoxy Coated, Low Zinc Stem w/ Handwheel

⟨24⟩ 4" Flg PRV Bermad Model 730-I-U Or Approved Equal, Epoxy Coated w/ Valve Position Indicator

⟨25⟩ 4" SCH. 40 Steel Pipe (Painted Desert Beige)

⟨26⟩ 6 Rows 2" O.C. Of 3-1"ø Holes, 180° Spray Pattern

⟨27⟩ 4" SCH 40 Steel Cap (Threaded)

⟨28⟩ 4" Ductile Pipe Spool

⟨29⟩ 4" DIP MJ x Flg 90° Elbow

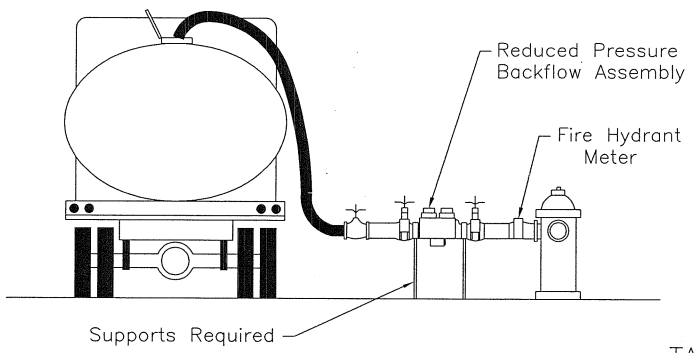
⟨30⟩ Flanged Connection w/ Breakaway Bolts

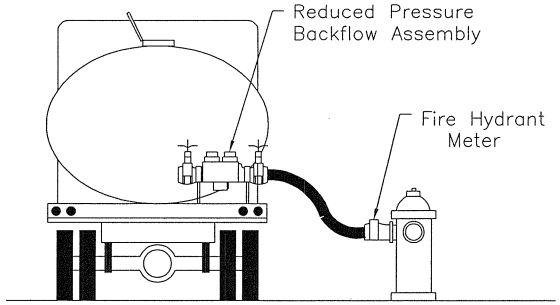
GENERAL NOTES

1. All pipe and valves are to be rated per system pressure.
2. Pilot lines for all controls will be stainless steel tubing.
3. Stainless tubing bends will be uniform and made with a tubing bender.
4. Bypass line (small PRV) shall be 4" Min. D.I.P.
5. Airvents and relief outlet riser pipe shall not be located within 12 feet of an existing edge of pavement or within 2 feet of a barrier type curb or 2' back of sidewalk.

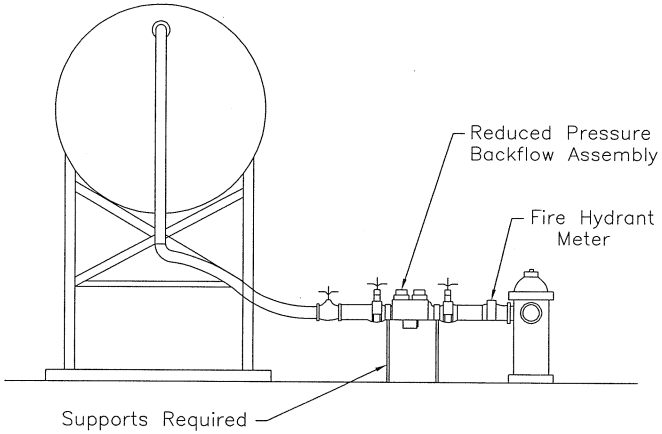
REVISED 2/27/01

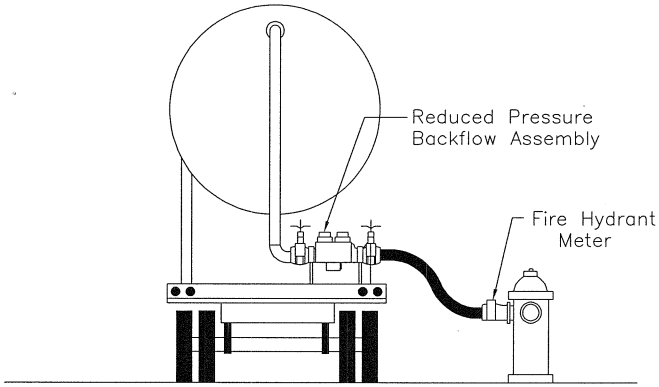
DETAIL NO. 2342-2	City of Scottsdale Standard Details	APPROVED BY: Scottsdale Standards & Specifications Committee	PRESSURE REDUCING VALVE	DETAIL NO. 2342-2





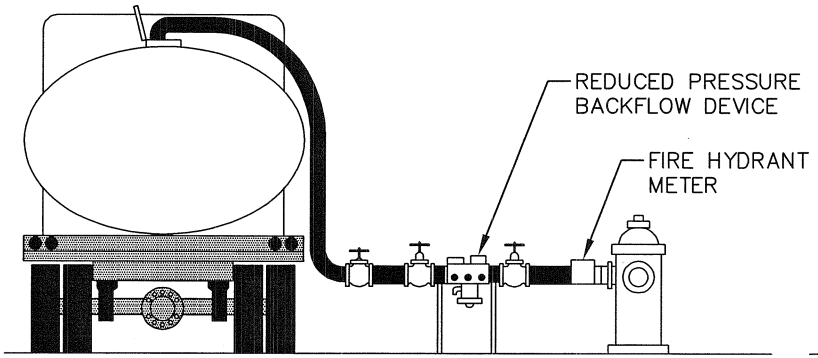
TANK TRUCKS

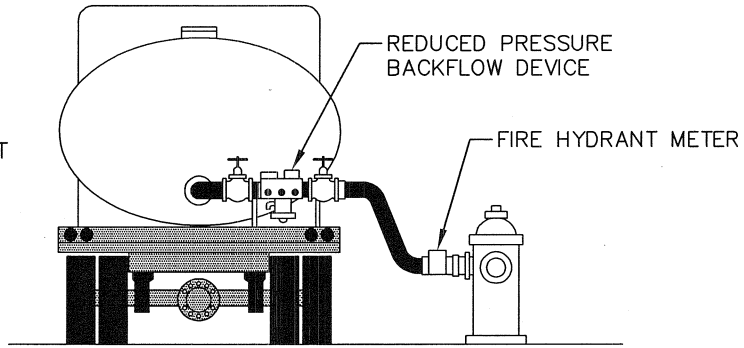




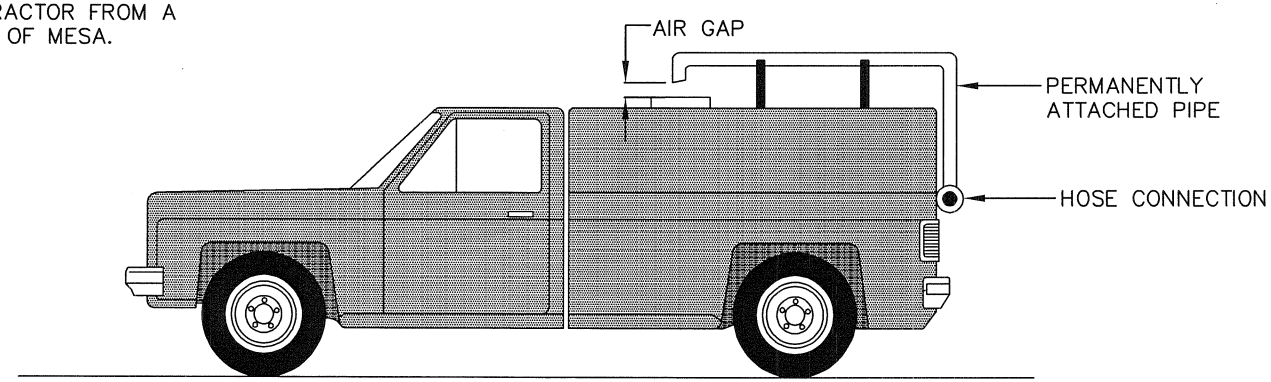
ELEVATED TANKS

DETAIL NO. G-3361	CITY OF GOODYEAR STANDARD DETAIL	APPROVED BY: Goodyear Standards and Policies Committee 7/97	BACKFLOW PREVENTION METHOD FOR PORTABLE TANKS WITH NO AIR GAP SEPARATION	DETAIL NO. G-3361





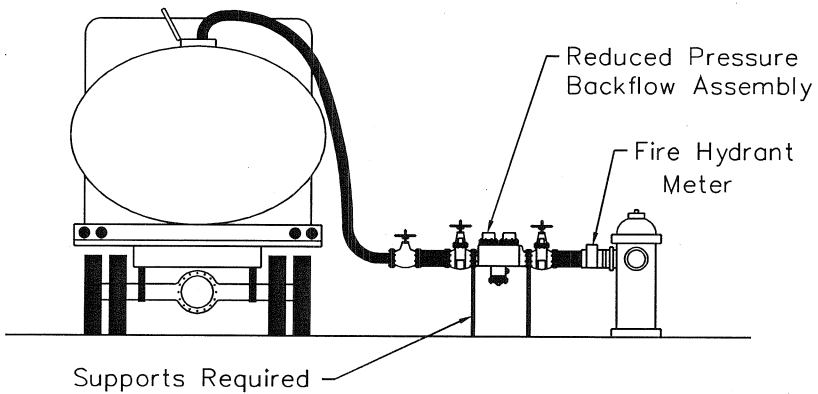
NOTE:
REDUCED PRESSURE BACKFLOW DEVICE SHALL BE SUPPLIED BY THE CONTRACTOR FROM A LIST SUPPLIED BY THE CITY OF MESA.

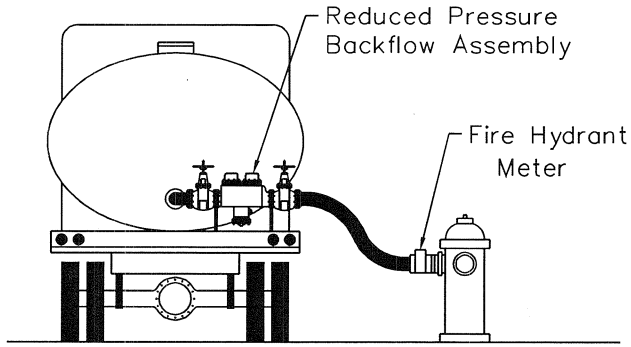


BACKFLOW PROTECTION FOR TANK TRUCKS

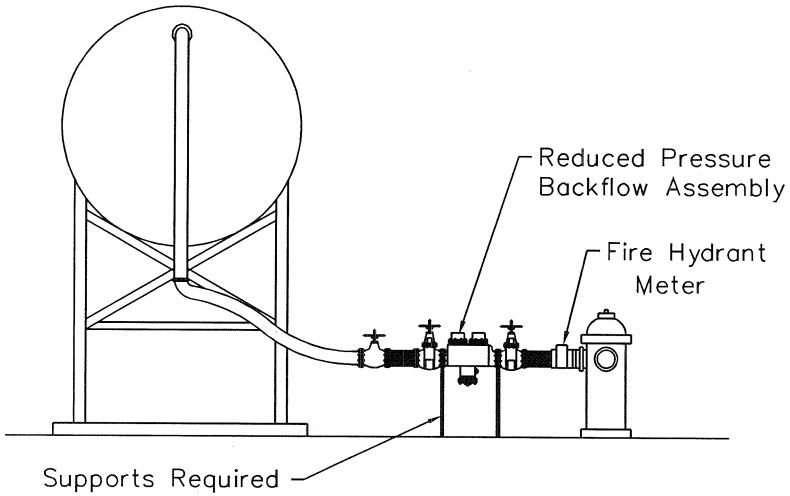
DETAIL NO. M-37.1

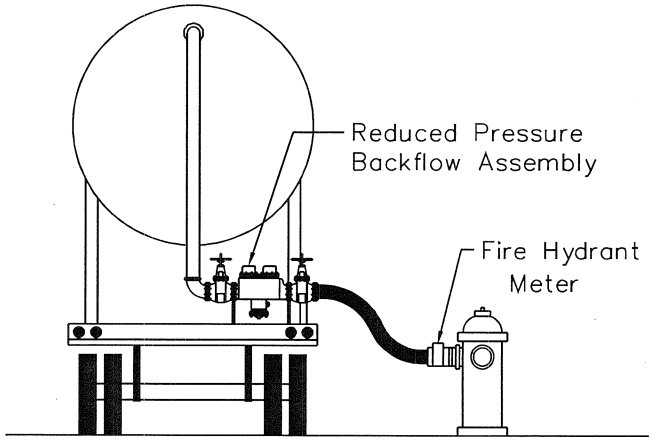
REV. 07/01/02





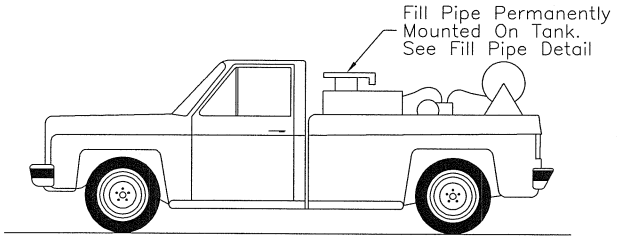
TANK TRUCKS



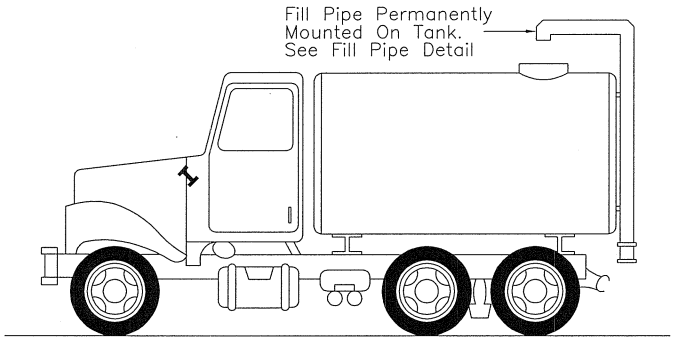


ELEVATED TANKS

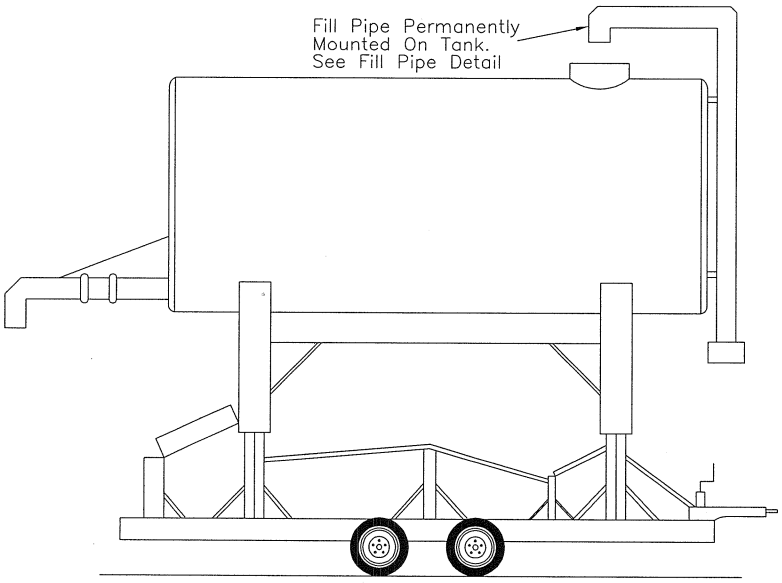
DETAIL NO. 2358	City of Scottsdale Standard Details	APPROVED BY: Scottsdale Standards & Specifications Committee	BACKFLOW PREVENTION METHOD FOR PORTABLE TANKS WITH NO AIR GAP SEPARATION	DETAIL NO. 2358



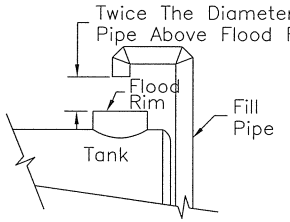
PESTICIDE APPLICATOR TRUCK



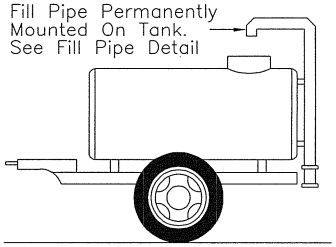
WATER TRUCK



ELEVATED TANK

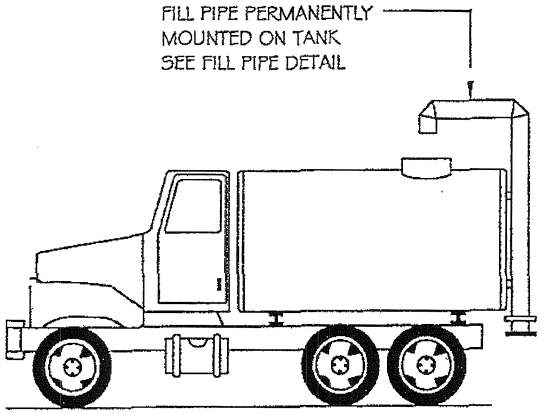


FILL PIPE DETAIL

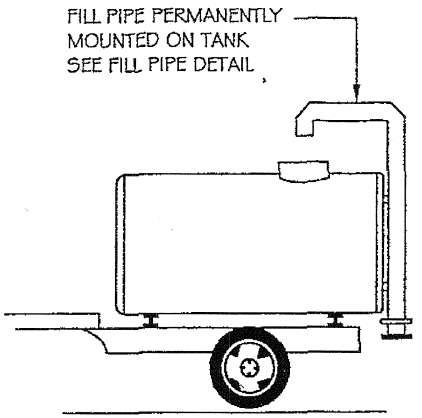


WATER WAGON

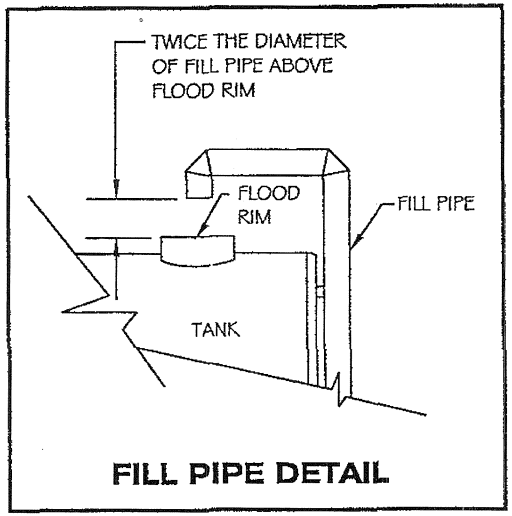
DETAIL NO. G-3360	CITY OF GOODYEAR STANDARD DETAIL	APPROVED BY: Goodyear Standards and Policies Committee 7/97	FILL PIPE DETAILS FOR PORTABLE TANKS WITH AIR GAP SEPARATION	DETAIL NO. G-3360



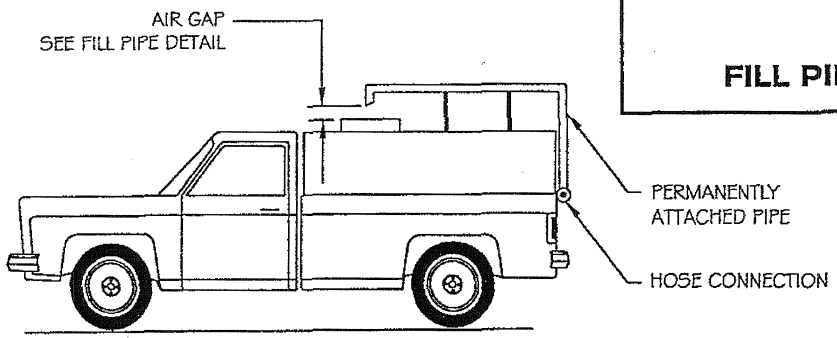
WATER TRUCK



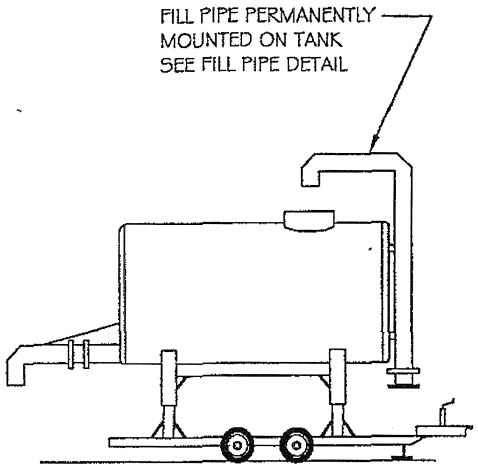
WATER WAGON



FILL PIPE DETAIL

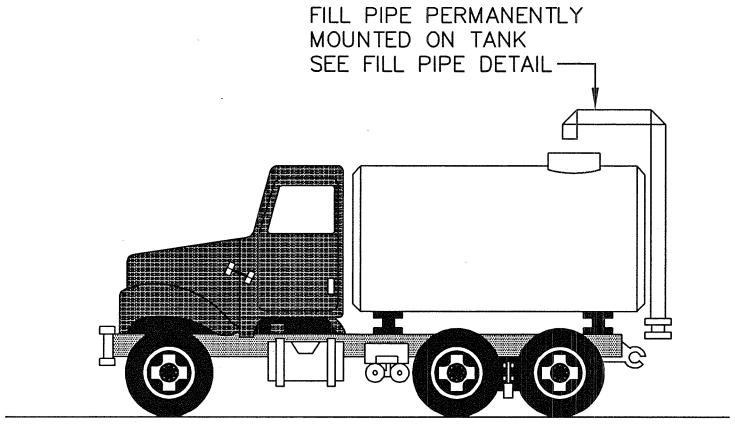


WATER TRUCK

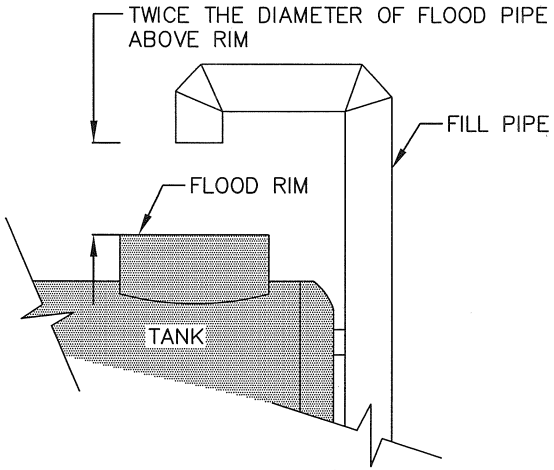


ELEVATED TANK

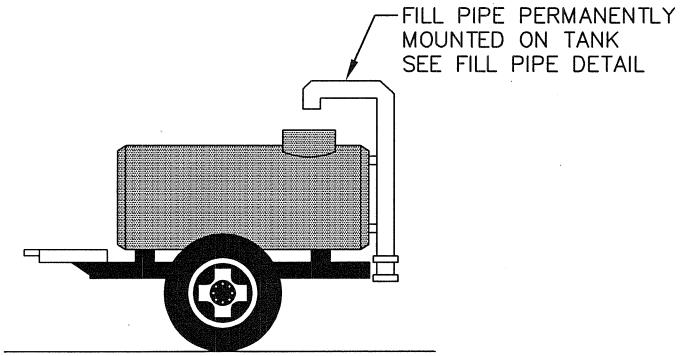
C-108 **REPLACES** **95**	CITY OF CHANDLER STANDARD DETAIL	**AIR GAP BACKFLOW PROTECTION FOR WATER TANKS**	APPROVED: _____ CITY ENGINEER DATE: 11-19-99	DETAIL NO. **C-108** NTS



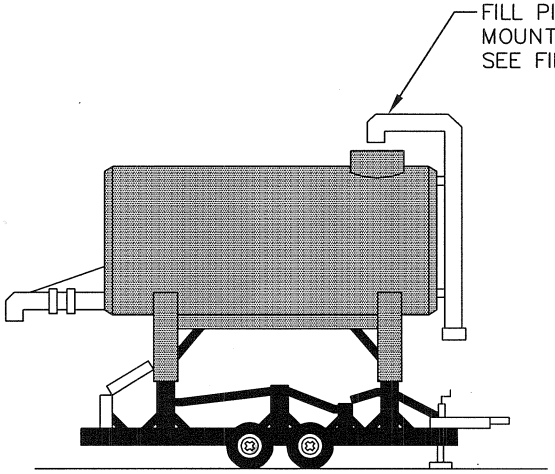
WATER TRUCK



FILL PIPE DETAIL



WATER WAGON

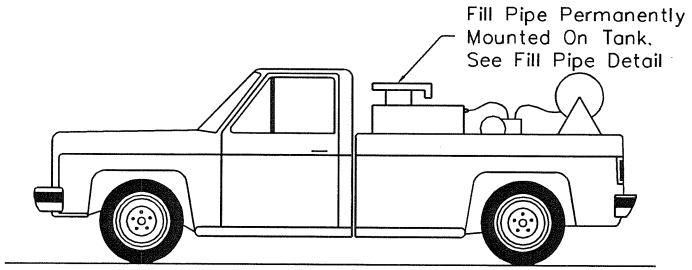


ELEVATED TANK

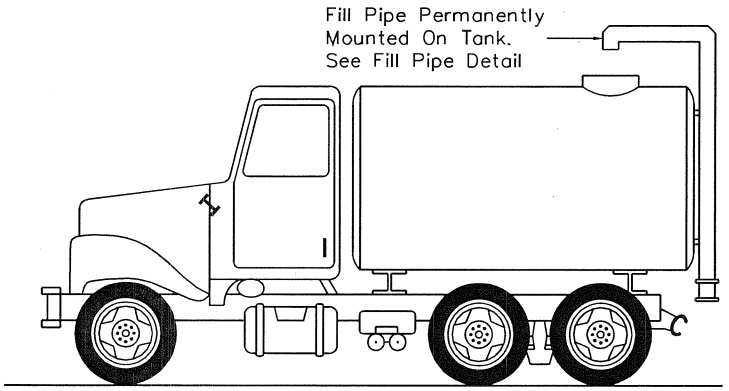
AIR GAP BACKFLOW PROTECTION FOR WATER TANKS

DETAIL NO. M-37.2

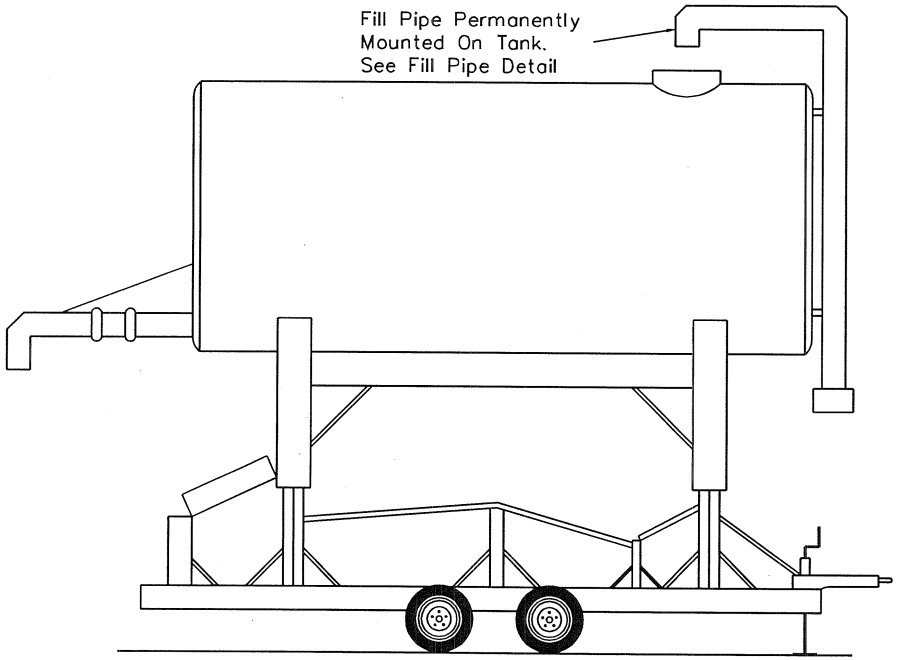
REV. 07/01/02



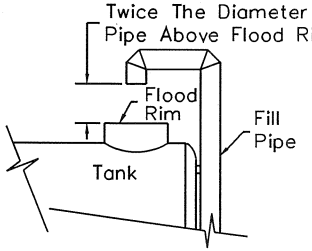
PESTICIDE APPLICATOR TRUCK



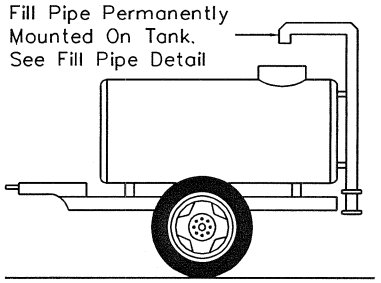
WATER TRUCK



ELEVATED TANK

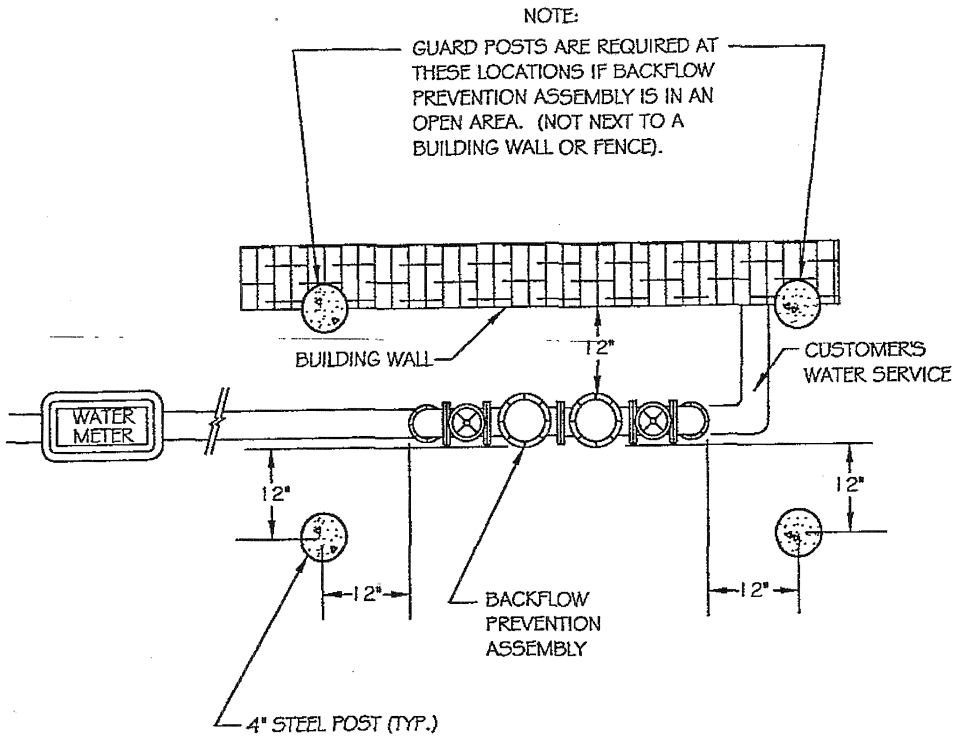


FILL PIPE DETAIL

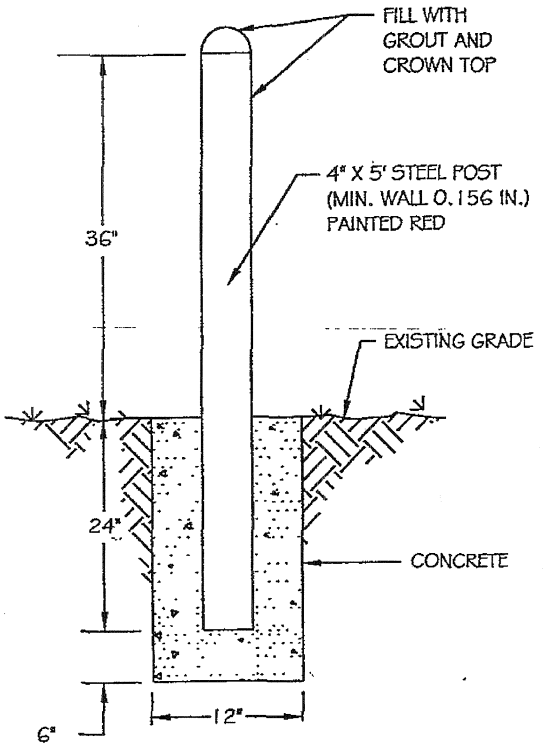


WATER WAGON

DETAIL NO. 2357	City of Scottsdale Standard Details	APPROVED BY: Scottsdale Standards & Specifications Committee	FILL PIPE DETAILS FOR PORTABLE TANKS WITH AIR GAP SEPARATION	DETAIL NO. 2357



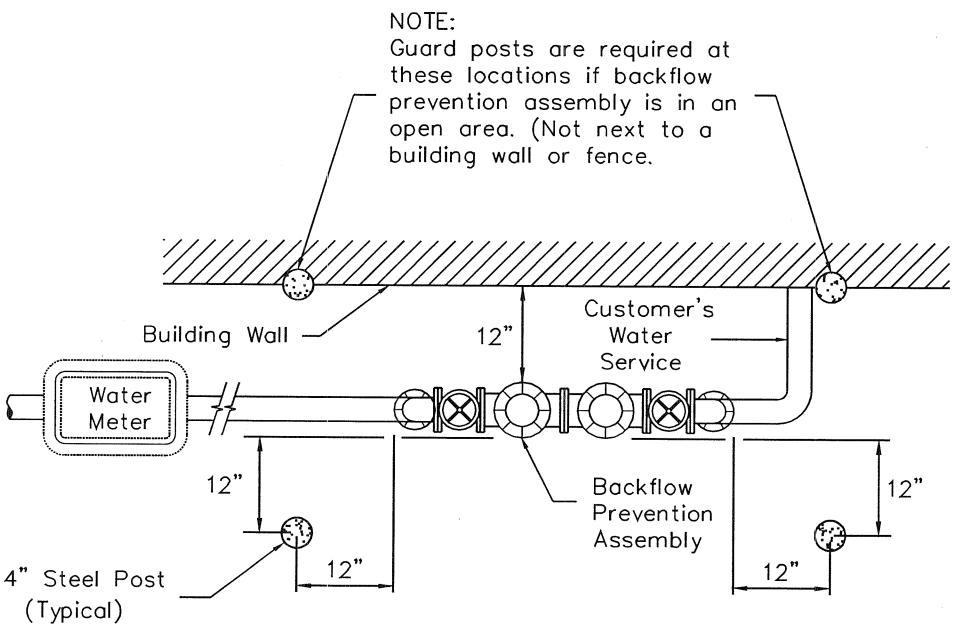
GUARD POST FOR BACKFLOW PREVENTION ASSEMBLY



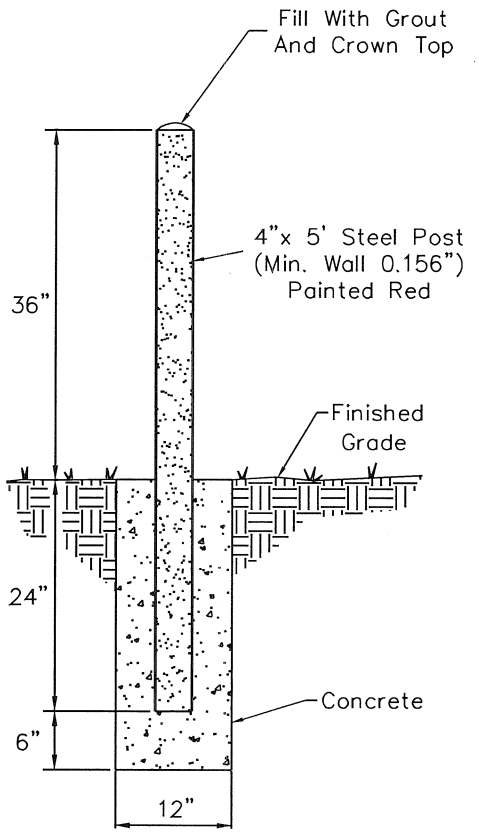
GUARD POST SECTION (BOLLARD)

C-105 REPLACES 94	CITY OF CHANDLER STANDARD DETAIL	GUARD POST FOR BACKFLOW PREVENTION ASSEMBLIES	APPROVED: CITY ENGINEER DATE: 11-19-99	DETAIL NO. C-105 NTS

REVISED 2/09/99

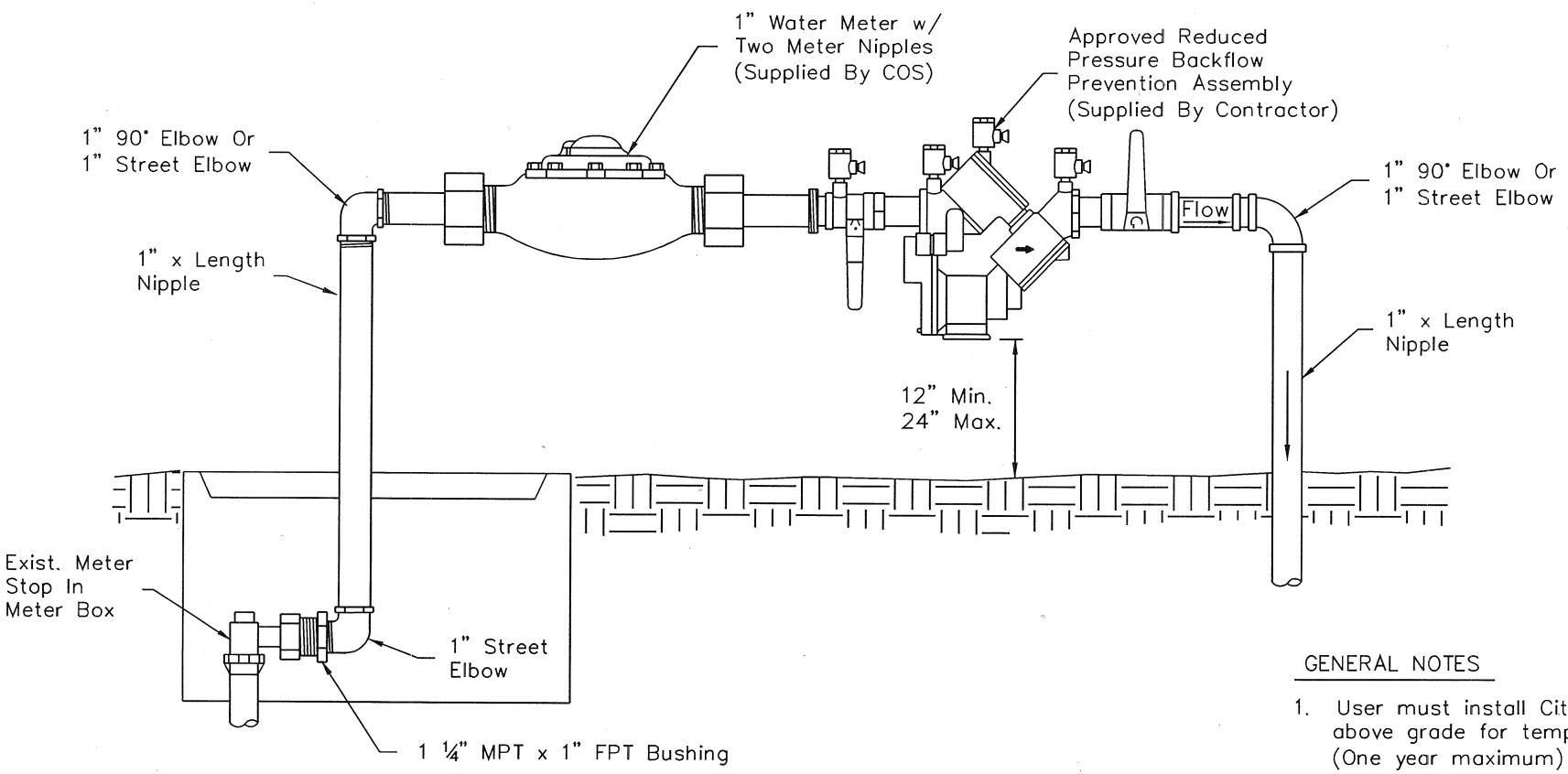


PLAN VIEW



GUARD POST SECTION

DETAIL NO. 2356	City of Scottsdale Standard Details	APPROVED BY: Scottsdale Standards & Specifications Committee	GUARD POSTS FOR BACKFLOW PREVENTION ASSEMBLIES	DETAIL NO. 2356

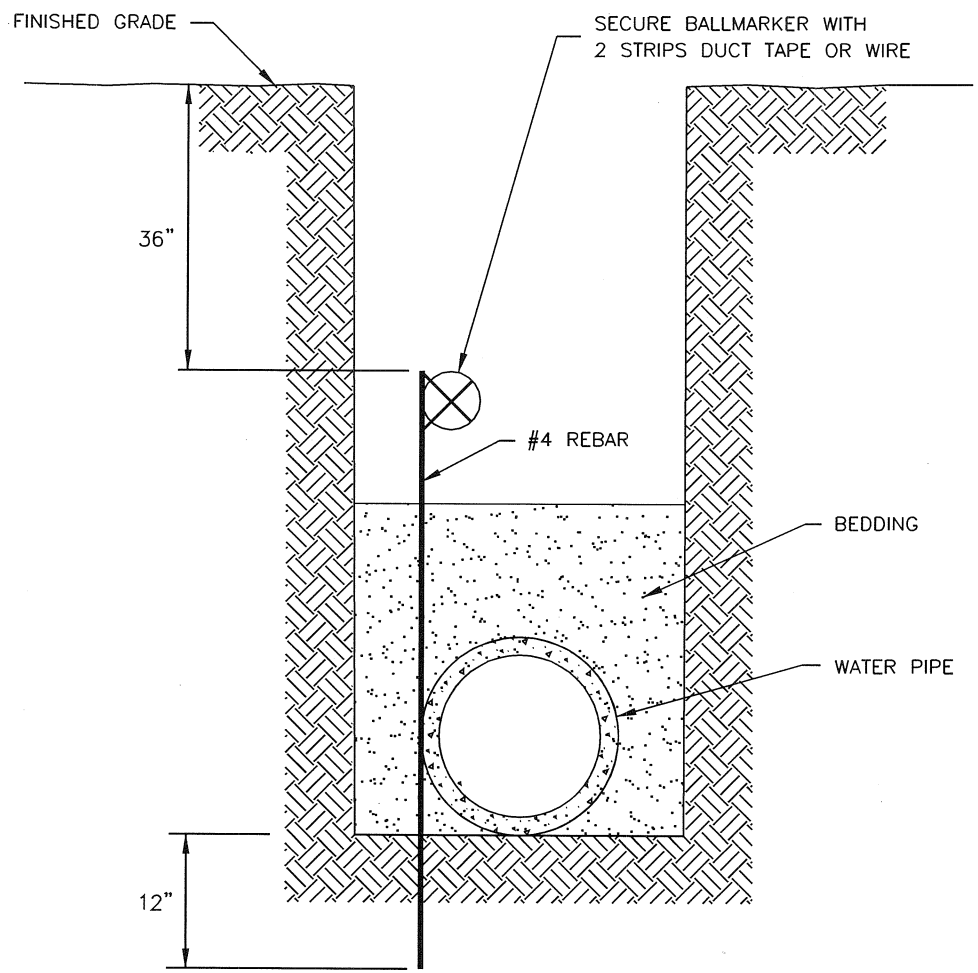


GENERAL NOTES

1. User must install City water meter above grade for temporary use. (One year maximum)
2. User must supply all fittings, nipples, valves and approved reduced pressure principle backflow prevention assembly. All fittings and nipples must be brass. The City shall supply the water meter.
3. Backflow assembly must be tested before use by a certified backflow assembly tester.

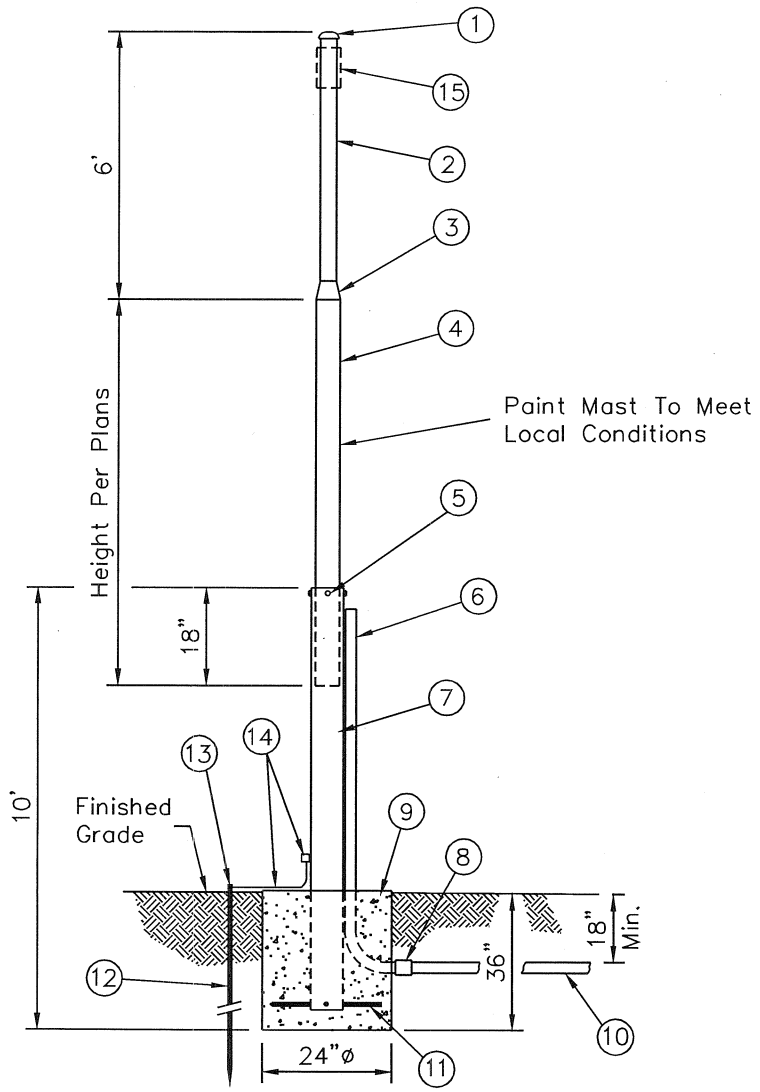
DETAIL NO. 2382	City of Scottsdale Standard Details	APPROVED BY: Scottsdale Standards & Specifications Committee	TEMPORARY WATER SERVICE	DETAIL NO. 2382

REVISED 4/12/05



DETAIL NO. 2397	City of Scottsdale Standard Details	APPROVED BY: Scottsdale Standards & Specifications Committee	ELECTRONIC BALLMARKER PLACEMENT	DETAIL NO. 2397

REVISED 4/30/04

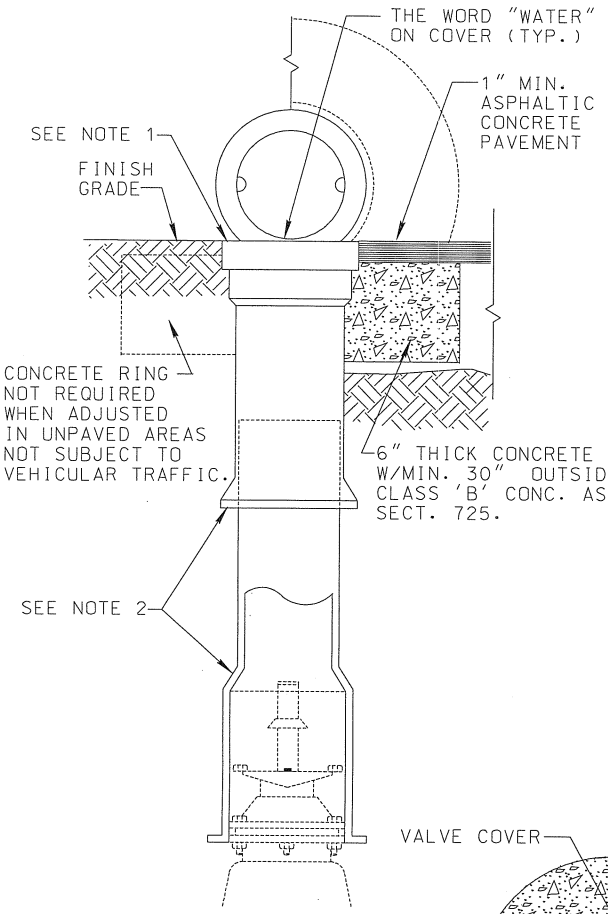


LIST OF MATERIALS

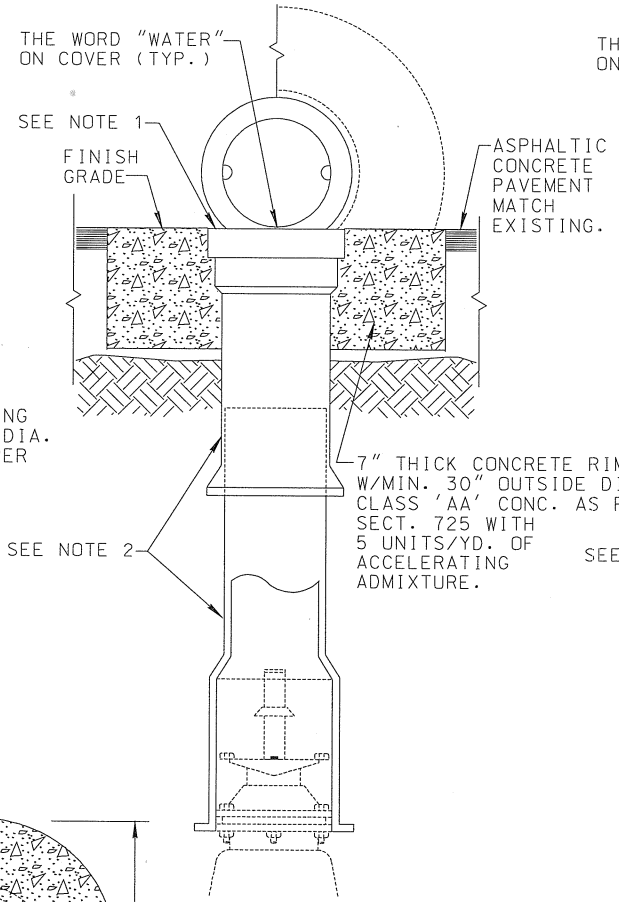
1. Raintight Cap
2. 2" Galvanized Rigid Steel Conduit
3. 2 1/2" To 2" Galvanized Steel Reducer
4. 2 1/2" Galvanized Rigid Steel Conduit
5. 1/2" Set Screw (Typ. – 4 Each)
6. 1" Rigid Steel Conduit, Strap To Mast Install Bushing On Top Of Conduit
7. 3" Galvanized Rigid Steel Conduit
8. PVC To Rigid Steel Conduit Fitting
9. Concrete Foundation, Class "B"
10. 1" PVC Conduit To Radio Transceiving Unit
11. #5 Rebar (8" Length) Welded To 3" Conduit (Typ. – 4 Each)
12. 5/8"ø x 8' Long Grounding Rod
13. Acorn Nut Connection
14. Ground Attached To 3" Conduit Using Lug And Self Tapping Screw
15. Install YAGI Or Omnidirectional Antenna Per Contract Documents

DETAIL NO. 2398	City of Scottsdale Standard Details	APPROVED BY: Scottsdale Standards & Specifications Committee	**ANTENNA MAST DETAIL**	DETAIL NO. 2398

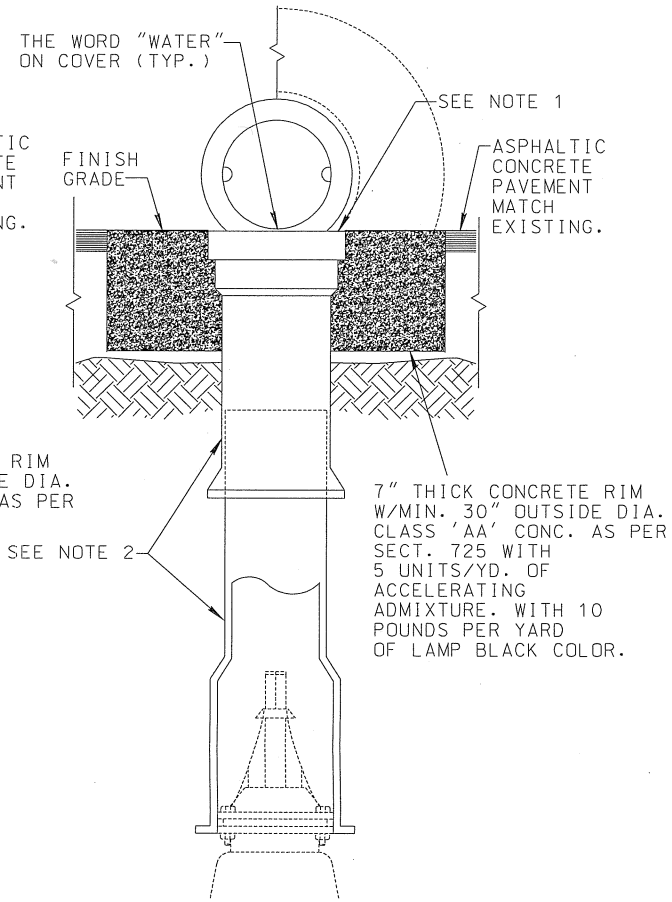
TYPE 'A' LOCAL STREETS

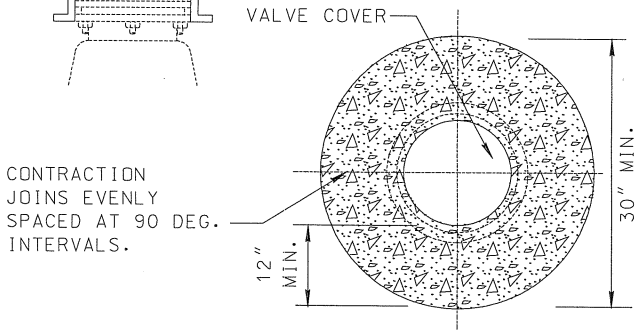


TYPE 'B' - ARTERIAL/MAJOR COLLECTOR - CITY UTILITIES



TYPE 'C' - ARTERIAL/MAJOR COLLECTOR - ALL OTHER UTILITIES





CONC. W/VALVE COVER
TYPICAL

NOTES:

1. VALVE BOX SHALL BE ADJUSTED TO THE FINISHED GRADE PRIOR TO PLACING OF THE CONCRETE OR ASPHALTIC CONCRETE SURFACE.
2. FOR INSTALLATION AND ADJUSTMENT OF CAST IRON VALVE BOX, SEE M.A.G. DETAIL NO. 391-1, TYPE "C".

ORIGINAL SIGNATURE ON FILE AT THE CITY OF TEMPE

APPROVED: _____ _____
DEPUTY PUBLIC WORKS MANAGER
CITY ENGINEER — DATE

CITY OF TEMPE PUBLIC WORKS DEPARTMENT	VALVE GRADE ADJUSTMENT	DETAIL T-445 2001